Lumleian Lectures

ON THE

PATHOLOGICAL RELATIONS OF THE VOICE AND SPEECH.

Delivered at the Royal College of Physicians, London,

BY J. S. BRISTOWE, M.D., F.R.C.P.,

SENIOR PHYSICIAN AND JOINT LECTURER ON MEDICINE, ST. THOMAS'S HOSPITAL.

LECTURE I.—PART I.

MR. PRESIDENT AND GENTLEMEN,—When, some months ago, I was offered the honourable post of Lumleian lecturer, I naturally thought that my many years' experience would supply me with numerous topics of interest, on any one of which I might venture to discourse, even before this distinguished audience; and I accepted it without misgiving. When, a little later, I was required to specify definitively the subject of my course, and had therefore to decide which I would select out of several groups of ideas which had been gradually acquiring distinctness in my mind as suitable for my purpose, I was determined in my choice mainly by the consideration that I had at various times given special study, if not original thought, to several points in connexion with the physiology and pathology of the voice and speech; and for the second time I committed myself with a light heart. It is only since I have taken it seriously in hand that all the difficulties of my task have confronted me, and only since I have looked at it from all points of view that I have fully learnt how little I really know of the subject on which I was hoping to throw some gleams of light. I have to confess, therefore, with some disappointment, that my lectures will be less worthy of the College than I had hoped to make them, and to crave indulgence beforehand for their incompleteness and inequality, and especially for the inadequate treatment in them of questions of supreme interest, while what may perhaps be regarded as matters of trivial detail are discussed at inordinate if not wearisome length.

Having relieved my mind by this apology, I shall proceed at once to the subject matter of my course—merely premising that on the present occasion I shall treat mainly of the physiological aspects of the voice and speech, and that the discussion of their pathological relations will be reserved for my second and third lectures.

I need scarcely remind you, gentlemen, that articulate utterance comprises three factors—namely: 1st, the emission of breath, due to the regulated action of the lungs and associated respiratory mechanism; 2nd, the production either of musical notes or of a rustling sound, determined by the passage of the breath through the rima glottidis; and 3rd, the formation of articulate sounds, which is the special function of the mouth and other organs anterior to and above the larynx.

1. The due action of the respiratory apparatus is of course of fundamental importance in the production of both laryngeal and oral sounds. Without previous inspiration expiration would be impossible, and without expiration there could be neither voice nor vocal speech. It is, in fact, the more or less forcible yet graduated expiratory blast which wakes the latent music of the larynx, and which later becomes moulded, so to speak, into articulate language.

2. The larynx is a musical instrument of extraordinary perfection and charm. It is generally considered to be a reed instrument, and is no doubt more closely related to this than to any other variety of musical apparatus. But whether it is to be looked upon as a stringed instrument, or as a reed instrument, or as a combination of both, is, after all, a very subordinate matter. What is of real importance to understand is its mode of action, and on this point our knowledge, excepting in one or two particulars, appears to be pretty complete. The essential elements of the vocal apparatus are the chordæ vocales, the cartilaginous framework to which they are attached, and the muscles which regulate the actions of these several parts. The vocal cords are two elastic strings, of which each is attached anteriorly to the posterior aspect of the thyroid cartilage, and posteriorly to the processus vocalis of the corresponding arytenoid cartilage, is covered above, below, and on the inner side with mucous membrane, and is connected externally with the lateral walls of the larynx, and especially with the thyro-arytenoid muscle. Thus they form the inner edges of two elastic laminæ, constituting the lateral boundaries of the rima glottidis, which in virtue of their connexion with the arytenoid cartilages are capable of being widely separated from one another behind, so as to allow of the unimpeded passage of the breath, or of being brought into absolute contact in their whole length, so as to completely close the laryngeal aperture, and which, in dependence mainly on the vertical rotatory movement of the thyroid on the cricoid cartilage (effected by certain muscles which I need not specify), are capable of being stretched or relaxed at will, so as to minister to the production of all the musical notes included in the compass of the voice.

There are three distinct kinds of voice which most persons, at any rate most men, are capable of uttering—namely, the natural or chest voice, the falsetto or head voice, and the whispered voice.

(*a*) In the production of the natural voice (which comprises in different individuals from one to three octaves) the vocal cords lie parallel with one another in their whole length, are in close contiguity or absolute contact, have each exactly the same degree of tension, and are thrown into synchronous vibration by the more or less forcible emission of breath through the linear chink between them. The pitch of the resulting note depends on the rate at which the cords oscillate; and doubtless some of the sound which is heard is due directly to their vibration, together with the consonant vibration of the cartilaginous framework to which they are attached. But it is certain that the great bulk of the sound is referable to the concurrent escape of the imprisoned air in rhythmical puffs through the constricted glottis; and it is especially from this fact that the larynx is regarded as a reed instrument. But, under any circumstances, the different notes which the same voice utters depend upon equivalent variations in the rate of vibration of the same vocal cords; and it is well therefore to understand on what these variations depend. The laws which regulate the vibration of strings (to which the vocal cords are usually compared) are few and simple. In the first place, in strings of equal length, thickness, and density, the vibrations executed in a given time are proportional in number to the square roots of the weights or forces by which the strings are stretched; and hence if three such strings be rendered tense by forces represented by one pound, four pounds, and nine pounds respectively, the second string will vibrate twice as rapidly, and the third thrice as rapidly as the first. In the second place, in strings of equal thickness, density, and tension, the rates of vibration are inversely as the lengths of the strings; so that if one such string be twice as long as another, it will oscillate with half its frequency; if it be three times as long it will oscillate at only one-third its rate. Further, other things being equal, the rate of vibration of strings is in inverse proportion to their thickness, and in direct proportion to the square roots of their density. It is evident, then, that if the vocal cords follow the same laws as strings, the number of vibrations which they execute in a given time must (in obedience to the first of these laws) become more and more rapid according as the force employed in stretching them increases; while, on the other hand, since the more powerfully they are acted on by this force the longer they become, it is obvious that, under the operation of the second of the laws quoted above, there will be a concurrent tendency to a reduction in the rate of vibration due to their elongation. In order to make my meaning clear, I will take an imaginary example. I will assume that the length of the vocal cords in the adult male at the time of their greatest relaxation, and when they are in a condition to

sound the gravest note of which his voice is capable, is 16 mm., and that they can by powerful voluntary effort be stretched to 20 mm., at which degree of tension they are in a condition to utter the highest note of his natural register. I will assume, further, that the compass of his voice is three octaves, and that his lowest note is one of 100 vibrations in the second, and his highest note consequently one of 800 vibrations in the same time. Now, if vocal pitch were dependent solely on relative length of cords, the voice should become deeper as the cords became elongated, and, assuming that the note emitted by the cords in their shortest condition to be one of 100 vibrations, that due to them in their state of greatest elongation would, under the circumstances, be one of 80 vibrations only. If, on the other hand, the differences of the uttered notes were determined by tension only, and consequently the same length of cords, namely 16 mm., vibrated in the production of every one of the notes of his voice, and if, further, the force of tension varied from 1 at the lower end of the scale to 100 at the upper end of the scale, the lowest note would still be characterised by 100 vibrations in the second, but the highest would be one of 1000 vibrations. But if we assume, as is in fact the case, that tension and elongation of the cords are going on concurrently, and that the highest and lowest notes, and *a fortiori* all intermediate notes, are a resultant of these two conditions, we shall find that the note due to the greatest elongation of the cords, instead of being one of 80 vibrations only, and that the note due to the greatest tension of the cords, instead of being one of 1000 vibrations, become, in accordance with our original hypothesis, blended, so to speak, into a note of 800 vibrations—the 1000 vibrations in a second due to the cord of 16 mm. becoming, according to the laws regulating the vibration of strings of different lengths, 800 vibrations in the second in a cord of 20 mm. If tension and length were the only points to be taken into consideration in determining the ratio of the musical adjustments of the vocal cords, the problem would be easy of solution. But this simple view of the case is not admissible, for it must be recollected that, during their varying degrees of elongation, the cords undergo variations necessarily in thickness, and perhaps even in density, and that these constitute more or less important factors in the determination of their rates of vibration. And it must especially be recollected that the so-called vocal cords are not really cords, free to vibrate between their extreme points, as true cords are, but that they are adherent along one side; and not only so, but that, starting from their free edges, they gradually increase in thickness, and become modified in structure as they pass outwards to blend with the lateral walls of the larynx. There can be no doubt that these latter conditions materially modify the action of the laws of vibration which I have particularly discussed. Yet there can equally be no doubt, from a due consideration of all the facts of the case, that variations of tension of the vocal cords are still, in some definite ratio, the essential cause of variations in the pitch of the laryngeal sounds.

I have spoken hitherto of the notes of the voice, as though they were due simply to vibrations of the cords in their whole length. Of course the cords do vibrate, at all degrees of tension, in their whole length, and thus produce the deepest tones of which, under such conditions, they are capable—in other words, their fundamental notes. But the human voice presents qualities of tone by which it is distinguishable from all other musical instruments, and individual voices present qualities by which they are recognised from all other voices. These, which are referable structurally to differences of form, size, and quality in the vocal cords and surrounding parts, are due acoustically to the fact that the cords, while vibrating in their whole length, divide into harmonic lengths which vibrate independently, and that thus assemblages of harmonic tones or overtones are superadded to the fundamental note, whatever it may be, and become acoustically blended with it.

(*b*) The nature of the falsetto voice is not even yet, I believe, thoroughly understood. That it is not produced in precisely the same way as the natural voice is obvious, for not only is there, in passing from the one voice to the other, a manifest effort, but there is a marked difference in the quality of the two voices; and, moreover, the two registers not unfrequently overlap, so that some persons can sing several specific notes indifferently with either voice. There are only two conceivable ways in which the vocal cords can be made to vibrate more rapidly, and, consequently, to evolve higher notes, than should result from the extreme application of the ordinary tensile force. The one is that by some mechanical means the cords are prevented from vibrating in their whole length; the other is that by some peculiar mechanism or manœuvre the musical vibrations of the cords are limited to their extreme edges, which being thinner than the rest vibrate with proportionately greater rapidity. The former of these explanations is unsatisfactory, inasmuch as no mechanism has been discovered by which the vibrating length of the cords can be systematically diminished. The latter has the sanction of J. Müller's and Helmholtz's authority. Helmholtz suggests that, by the action of the thyro-arytenoid muscles, the mucous membrane becomes retracted from the lower part of the cords, which thus become attenuated. It is asserted by Garcia that the glottis is partly open during the utterance of the falsetto voice. I am disposed, however, to question the accuracy of this statement, partly because, if this were so, the escape of unvocalised air would affect the purity of the notes evolved, partly because a falsetto note may be sustained for an equal length of time with its corresponding chest note, which implies that there is no greater waste of air in the one case than in the other; and partly because in a case which I had recently the opportunity of observing there was no visible separation of the cords when falsetto notes were being produced. Still, whatever explanation be adopted, there is no doubt that the different notes of the falsetto voice, like those of the natural voice, are determined mainly by differences of longitudinal tension.

(*c*) In the whispered voice the larynx remains partly open, the breath traversing the rima glottidis with a more or less distinctly audible breezy or sighing sound. The extent to which the glottis is patent varies no doubt considerably, but in any case there is such a relation between the force with which the breath is expired and the size of the laryngeal orifice, as to cause an audible flutter in the air as it traverses it. The sound is in no degree musical, and is probably wholly independent of any vibration of the vocal cords. On the other hand, it is distinct from the ordinary simple expiratory sound, during which the glottis is widely open, and which is often scarcely audible even by means of the stethoscope.

3. Articulate sounds, which by their combinations make words and sentences, and which are consequently the acoustic factors of spoken language, are the especial product of the mouth, fauces, and nose, inclusive of course, as special agents in their production, of the soft palate, tongue, teeth, and lips. They are all framed, so to speak, on breath emitted from the lungs through the glottis, and for the most part on breath which has undergone vocalisation in the larynx, or at any rate on breath which has been thrown into audible vibrations in its passage through that tube. And their several specific characters are due to the facts that the breath in its transit from the rima glottidis to the external air is checked in a greater or less degree by obstructions of different kinds, and made to pass through channels of varying form, and that thus noises and resonances variously combined are superadded to the noise or music of the laryngeal voice.

(*a*) Articulate sounds are represented by letters; but to a great extent they are very imperfectly thus represented, and moreover the names which are given to them are generally mere names which not unfrequently have little or no phonetic relation to them. Our own alphabet, which is confessedly very imperfect, comprises twenty-six letters; of which five are regarded as vowels, and the remaining twenty-one as consonants. Our so-called vowels, I need hardly tell you, are *a*, *e*, *i*, *o*, *u*. Of these, *a*, *e*, and *o* are, according to their names, undoubtedly well-defined vowel-sounds; but *i* is a diphthong formed by the sequence of *a* in *far* and *i* in *hit*; and *u* is a word compounded of the consonant *y* and of the vowel represented by *oo* in *fool*. The names by which we know them no doubt are unimportant, provided we have a definite knowledge of what the characters themselves mean. But unfortunately these are employed not only with the greatest laxity, so that there is scarcely any one among them which does not in certain positions have the force of any one of the other four, but the five nominal vowels have to do duty for more than a dozen distinct vowel-sounds which are contained in our language. If the five so-called "vowels" were to be limited in use to the sounds represented by their own names, we should have no signs whereby to indicate the other equally distinct vowel-sounds represented by *a* in *fall*, *a* in *far*, *a* in *shall*, *oo* in *fool*, *e* in *pet*, *i* in *pit*, and several others, but above all *ur* in *fur*,

which is probably the commonest, and yet the least generally recognised, of all our vowels. I shall not discuss the names of our one-and-twenty consonants further than to show that while many of them do consist simply of their own proper sounds conjoined to a vowel, some of them, like *c* and *g*, stand for at least two distinct sounds, of which one, like the sound of *c* in *cat* or *g* in *get*, has no relation whatever to the actual consonantal name; others, such as *h* and *w*, are mere names; and others, again, of which *y* is an example, have actually appropriated to them the names of other letters. The name of *y* is compounded of the letter *w* and the diphthong *i*. But here, again, as in the case of the vowels, the characters are insufficient; for we have several distinct consonants in our language which have no specific literal representation. The best-known of these are the sounds of *ng* in *tongue*, of *th* in *the*, of *th* in *thing*, of *sh* in *she*, and of *z* in *azure*. Further, several of our consonants are double letters, and therefore simple luxuries—namely, *q*, which is compounded of *k* and *y*; *j*, which is a compound of *d* and *z* in *azure*; and *x*, which is made up of *k* and *s*; while several others, such as *c* and the soft *g*, are mere duplicates of *s* and *k*, and of *j* respectively. I have made the above remarks, not with the intention of giving an exhaustive criticism of the imperfections of our alphabet, but simply with the object of showing that it is so far imperfect that it can scarcely be made a basis for the discussion of literal sounds.

(*b*) It is easy to arrange letters in groups, in accordance with certain striking peculiarities which they present. Thus, they may be divided into two classes, according as they are attended with vocal sound, or are uttered independently of such sound; the former class, which is termed "sonant," or "voiced," including such letters as *b*, *d*, hard *g*, *v*, *z*, *m*, *n*, and *l*, together with the vowels; the latter class, termed "surd," "voiceless," or "aspirate," comprising, among others, *p*, *t*, *k*, *f*, *s*, and *h*. Or they may be classified according as their pronunciation admits of indefinite prolongation, or is of momentary duration only; the latter class comprising the explosive consonants *b*, *d*, hard *g*, *p*, *t*, and *k*, together with perhaps some of the so-called "short" vowels, the former embracing all the remaining letters, which are sometimes called "continuants"—or, again, they may be grouped into those in the pronunciation of which the septum between the nose and the mouth remains open, and which have consequently a nasal quality, and those in which this quality is absent. To the former class belong the letters *m*, *n*, and *ng* in *tongue*, as also the French nasal vowels. But it has always been customary among grammarians to make the primary division of letters into vowels and consonants; the former, according to the general statement, admitting of perfect independent utterance, the latter needing, for the full development of their peculiar sounds, to be associated with some vowel. That there is a real and fundamental difference between vowels and consonants is, I think, quite certain. But the distinction which has just been quoted is obviously neither accurate nor sufficient; for the great majority of consonantal sounds may be produced perfectly without vowel aid; while some, in certain combinations, habitually play the part of vowels, as is evidenced by such words as a-*ble*, lit-*tle*, mai-*den*, spo-*ken*, sea-*sons*, pick-*led*, in each of which the last syllable, though written with a vowel, is pronounced without one, the *l* or *n* serving the purpose of a vowel; and, further, the contact, if not the actual blending, at certain points between vowels and consonants, is even more markedly shown in the acknowledged relationship which exists between the long *e* and the consonant *y*, and between the vowel represented by *oo* (in *fool*) and *w*. The essential differences between them appear to be: first, that in the pronunciation of the vowels there is a much less interrupted passage of air through the oral cavity and aperture than there is in the pronunciation of consonants; and perhaps, secondly (for on this point I am not quite clear), that whereas the fundamental sounds of the vowels are produced at the rima glottidis, either in a whisper or in the ordinary voice, the fundamental or essential sounds of the consonants are developed within the mouth, at the point at which an impediment is offered to the escape of breath by the lips, tongue, or teeth.

(*c*) *Vowels.*—It was first suggested by Wheatstone, and has since been shown by Helmholtz, that the vowel-sounds differ from one another in the fact that the note emitted by the vocal cords in the process of their utterance (assuming this note to be the same for each) is modified in its passage through the mouth by the superaddition to it of groups of harmonic tones, which are determined by the form and size which the different parts of the oral cavity assume, and are specific for each vowel; in other words, that the vowels are merely timbres or qualities, due to oral resonance, of the inarticulate laryngeal sounds. He proved this both by analysis and by synthesis for several of the most characteristic vowels. Thus, by the use of a series of properly adjusted tuning-forks, successively brought into the vicinity of the oral aperture at the time when the organs of articulation were pronouncing, or were in the position to pronounce, various vowel sounds, and by observing in each case which of these had their notes reinforced by resonance, he was enabled to detect the chief oral resonances characteristic of the particular vowels under investigation; and subsequently, under the guidance of the knowledge thus obtained, he was able, by simultaneously sounding selected groups of tuning-forks in harmonic relation with one another, to reproduce combinations of fundamental tones and harmonics, which were severally recognisable as specific vowels. The above theory of the causes of the vowel-sounds is confirmed by their mode of production by Willis and others. Willis evoked them by means of an artificial larynx, which yielded the fundamental note, and by resonant tubes of variable length placed in front of or above this larynx, which modified the quality of the fundamental note, and thus converted it, according to the special conditions of the experiment, into one or other of the five principal vowel-sounds.

It may be admitted, then, that the recognised vowel-sounds are the product of vocalised or whispered breath and of superadded oral resonances, the specific characters of which are determined by the differences of capacity and form which the oral cavity and aperture assume for each. And, since such differences are theoretically innumerable, it might even be assumed, with Max Müller, that the possible vowel-sounds are infinite in number. But, on the other hand, the fact that the recognised vowel-sounds of most, if not of all, languages are, with occasional characteristic and easily recognisable exceptions, identical or nearly so, renders it not improbable that most of the vowel-sounds, which the ear could readily distinguish from one another, have already been utilised.

The vowels of the English language are, I believe, fourteen in number—namely (to give them in selected words, so that they may admit of ready comparison): *a* in *past*, *a* in *pat*, *e* in *pet*, *a* in *pate*, *i* in *pit*, *e* in *peat*, *au* in *pauper*, *o* in *pot*, *o* in *potent*, *u* in *put*, *oo* in *boot*, *u* in *pur*, and *u* in *putty*. And to these may be added the French *u* in *tu*, which is also a German vowel, as in *Kühnste*, and an English provincialism; the French *eu* in *jeune*, and the equivalent German *oe* in *Goethe*; and the French nasal vowels, of which there are four—as exemplified in the words *donc*, *dans*, *un*, and *fin*.

Kempelen, many years ago, gave the following statement of the relative sizes of the oral opening and canal during the utterance of the following vowels, pronounced in the German fashion, the size of the oral canal being determined by the position which the tongue assumes:—

a (*past*) ...	5	size of oral opening	...	3	size of oral canal	
e (*pate*) ...	4	,, ,,	...	2	,, ,,	
i (*peat*) ...	3	,, ,,	...	1	,, ,,	
o (*potent*)	2	,, ,,	...	4	,, ,,	
u (*boot*) ...	1	,, ,,	...	5	,, ,,	

This determination, so far as it goes, is probably not very far from the truth; but it only relates to five out of the twenty vowels just enumerated. Further, as regards the oral orifice, size is not the only element to be considered; and, as regards the oral canal, it is important to consider, not merely size, but the peculiarities of position of the tongue, and the consequent peculiarities in the form of the canal.

DR. FRANKLAND reports that the Thames water delivered during March by the companies drawing their supply from that source, showed excessive organic contamination. The Chelsea Company's Water, through inefficient filtration, contained "fungoid growths and moving organisms." The Lea Water sent out by the New River and East London Companies was superior to the Thames water, but the latter company's water was insufficiently filtered, and contained moving organisms. The New River Company's Water contained "crystalline films of carbonate of lime." The deep-well waters supplied by the Kent and Colne Valley Companies, and by the Tottenham Local Board were of their usual excellent quality.

Gulstonian Lectures
ON
THE LYMPHATIC SYSTEM AND ITS DISEASES.

Delivered at the Royal College of Physicians, March, 1879,

BY JOHN CURNOW, M.D., F.R.C.P.,
PROFESSOR OF ANATOMY IN KING'S COLLEGE, AND ASSISTANT-PHYSICIAN TO KING'S COLLEGE HOSPITAL.

LECTURE II.—PART I.

IN almost every case a lymphatic vessel, which is large enough to be distinguished by the naked eye, passes from a network of smaller vessels to the nearest group of glands, and enters one of them. Hewson thought that a lymphatic might pass into the thoracic duct or right lymphatic trunk without a gland being interposed in its course; but this view was strenuously opposed by Mascagni, who lays down as an absolute law that "every lymphatic enters at least one gland before opening into either of the large trunks with which the lymphatic system terminates." This dictum is supported by most modern anatomists; frequently, indeed, two or three glands intervene between the origin of a given lymphatic vessel and the main trunk. It should be noted that the lymphatics which arise near the receptaculum chyli often pass through more glands than those which come from a distance, for the glands become more and more numerous as we approach this situation.

The lymphatic vessels are divided into superficial and deep; and this is a very practicable division, not only in the limbs, but in the viscera. In the trunk and limbs the superficial lymphatics traverse the fatty layer of the subcutaneous tissue, and whilst their arrangement is somewhat similar to the cutaneous veins, they are always more superficial; the deep lymphatics accompany the deep vessels, the artery being placed in the centre, its venæ comites on either side, and the lymphatics still outside these. The superficial lymphatics are vastly more numerous, but smaller in size than those which run sub-aponeurotically. As a rule, the lymphatic vessels are uniform in size from their commencement to their termination, but a few are remarkable for their tortuosity—e.g., those in front and just below the knee, on the internal malleolus, and on the upper surface of the liver. The superficial lymphatics of the limb anastomose freely with one another, and so do the deep, but there is no communication between the two sets, except in the glands, which may be common to both. To this is due the remarkable circumstance that either set may be separately diseased, and that we are entitled to speak of superficial and deep lymphangitis as distinct affections, although inflammation occasionally spreads from one group to the other. Mascagni has figured a single communication between the deep and superficial lymphatics of the thigh at the opening in the great adductor muscle, but subsequent anatomists have failed to verify this observation. The mode of anastomosis is peculiar. A lymphatic vessel will run for a certain distance parallel to two other vessels, and then divide; it may join both of them, or one of the branches will continue onwards and the other run into an adjacent vessel. In this manner a plexus with large meshes is formed, and so we can inject the whole series in a limb, if we are successful in filling three or four vessels. The rapidity with which inflammation spreads from vessel to vessel is thus easily explained.

In solid viscera the lymphatics are also arranged in two strata, one beneath the capsule, the other coursing from the interior of the organ, with the bloodvessels, and leaving at the hilus. In tubular viscera the external set lies under the serous membrane, whilst the deep vessels arise in the mucous membrane, and form a plexus in the submucous tissue.

In the viscera generally anastomoses between the superficial and deep lymphatics are much more frequent than in the limbs.

Having now given an outline of the lymphatic radicles, the networks and the larger vessels, I shall refer briefly to some of the more interesting of their diseased conditions.

Inflammation of subserous lymphatic networks occurs usually in the course of inflammation of the serous membranes and the viscera covered by them. The networks in the subcutaneous tissue are often affected either separately or as an antecedent to inflammation of the trunks. Reticular lymphangitis in the limbs usually results from an injury, and although generally developed in the immediate vicinity, may appear at some distance from the local mischief. It is especially observed in situations where lymphatic networks are abundant, such as near the median line of the scalp and trunk, on the hands, feet, and extensor surfaces of the elbow and knee, and at the orifices of the body. If limited to a small surface, such as the terminal phalanx, it is marked by a uniform rosy or fiery red colour, with some pain, heat, and considerable swelling. The corresponding glands are tender from the commencement. If it extends to the back of the hand or foot, wavy red lines may be seen, but they are so close together as to require careful observation to distinguish them. The redness next becomes uniform, but the fusion is incomplete, so that patches are formed, which are very variable in tint, size, and arrangement. They are accompanied with a slight œdema, a feeling of tension and burning, and are exquisitely tender. Invasion of the trunks is by no means constant. The appearances vary from day to day; the duration is usually short, but it occasionally becomes chronic, and may last for several weeks.

A curious variety is the wandering form, which I have more than once seen as the result of a dissection wound, and from repeated contact with septic materials, even when there is no breach in the skin. It generally begins on the dorsum of the hand, and extends upwards by the successive appearance of multiple patches, occasionally, but not always, connected by wavy lines. Each patch lasts but a few days, and is quickly followed by another. They are extremely painful, and around them is a slight œdema. The corresponding glands are always enlarged and painful, even when there is no secondary implication of the main lymphatic trunks.

With reticular lymphangitis I am inclined to include the acute swelling of the lips and tip of the nose, which is so common in strumous people, and the red and painful patches in the vicinity of eczematous eruptions on the nose, lips, and ears, inasmuch as it is only where lymphatic networks are especially abundant that such painful œdematous swellings occur.

With regard to inflammation of the lymphatic rootlets, we can only admit its occurrence without being able to give a separate description of it. It is impossible to conceive of inflammation of almost any part of the body without the radicles of the lymphatics taking part therein; they are so widely distributed, and in such intimate connexion with the tissue elements. Many so-called erythemata are probably due to an implication of these vessels, as, for instance, those which occur premonitory to the development of an elephantiasis Arabum, &c. Another interesting point is the connexion between erythema nodosum and lymphangitis. Dr. Grimshaw has noticed their concurrence in both legs, in a case, accompanied by abdominal tenderness, and I have also seen them coexisting in a patient who complained so much of tenderness, and had so extensive an effusion into the knee-joints, that at first sight the case was supposed to be an acute articular rheumatism.

In inflammations of connective tissue (tendons, aponeuroses, areolar tissue, &c.), we must remember that the flattened endothelial cells around the bundles of fibres and the cells (lymph-cells) in the interspaces are the only structures, normally existing, that can undergo an active proliferation. The fibres, deprived of their nutrition by being separated from the lymph which surrounds them in health, undergo a gradual process of decay and death. At first they are swollen, less completely fibrillated, and lose their sheath; they then become granular, break down, and finally are completely dissolved. There can be no doubt that the cells in the interstices of the tissue, as well as the large flat cells, are largely concerned in this process. I merely instance this that we may recognise the existence and importance of these cell-elements without in any way intending to exclude, or even minimise, the part played in inflammation by the migration of white blood-corpuscles, as held by Cohnheim.

Again, in the development of a carcinoma in connective tissue, these cell-elements, both the ensheathing cells and

those in the interstices, undergo transformation into the multiform cells of the new growth; whilst the fibres form the stroma or trabecular framework in which they are enclosed. In this explanation I accept Cornil's anatomical definition of "a carcinoma," that "it is a tumour composed of a fibrous stroma limiting alveoli, which form, by their communications, a cavernous system. These alveoli are filled with free cells in relation with one another in a more or less abundant liquid."

If a carcinoma be developed where, in the normal condition, connective tissue does not exist, there is always a premonitory stage. In cancer of bone, for instance, the fat-cells of the medulla disappear, and are succeeded by embryonic cells; the laminæ of the bone undergo partial absorption, and the spaces formed by the imperfect lamellæ are filled with an embryonic tissue. This embryonic tissue becomes fibrillated, and it is in this that the cancerous change takes place, for the former stage is common to it and to an osteitis, as far as histological features are concerned.

Here I would incidentally remind you that, in the ordinary development of a long bone, the cartilage in which the bone-salts are primarily deposited is absorbed, and that the perfect bone is formed in an osteogenetic tissue, which in many respects recalls the characteristic features of embryonic connective tissue; so that the transformation of a fully developed tissue into another presenting characters quite different therefrom is not necessarily pathological.

Superficial lymphangitis of the limbs and trunk, with its wavy red lines, is so well known that I need not stay to describe it. But inflammation of superficial lymphatics may occur also in patches, which generally correspond to the places of anastomosis between adjacent vessels. The patches are large, and distant from the original source of irritation, and instead of being united by the red lines of the inflamed trunks, are frequently isolated. In such cases, especially if there be much swelling around the patches, the nature of the affection may be overlooked.

Deep lymphangitis, like superficial, may affect the networks and the trunks, separately or together. We know nothing, however, of deep reticular lymphangitis. When the deep trunks only are involved, we lose the characteristic lines and patches with which we are so familiar in superficial cases. The earliest symptoms are indurations of variable extent, but fixed in position, and with no tendency to become intermixed. They give the idea of an acute œdema, rather than of an inflammation. They are attended with, or even preceded by, pain, which is generally lancinating in character. Redness only appears if the swelling extends above the deep aponeurosis of the limb, and even then is not uniform, but in patches of a pale tint, and the surface usually shines. The deep glands are always first affected, and the superficial ones secondarily. It frequently runs on to deep-seated suppuration; indeed, many cases of diffuse cellulitis begin as a lymphangitis, without the primary cause being discovered.

Deep lymphangitis may spread to the superficial vessels and *vice versâ*. This is, however, by extension through the intervening tissues, or backwards from the glands, rather than by anastomotic vessels.

Much stress is laid by the late Mr. Moore, in his article on the Diseases of Absorbents, in Holmes's "System of Surgery," on the arrest of lymphangitis at the nearest gland. He urges that the inflammation and suppuration of the gland is eliminative as regards the afferent lymphatics and the distal parts, and protective as regards the circulating blood. This is by no means a constant feature, and depends greatly on the nature and intensity of action of the exciting cause. I have seen many exceptions to it, and only recently a case in which, from the absorption of septic material by a wound on the middle finger whilst dissecting, the supra-condyloid gland became enlarged, red lines passing from the wound to it, and from it similar red lines could subsequently be traced to a painful and swollen gland in the axilla. The case was by no means severe. Moreover, if a gland is so changed in structure as to cause any obstruction to the onward flow of the lymph, the afferent vessels, being over-distended with fluid, are very prone to inflame secondarily.

A case of extensive lymphangitis is recorded by Dr. Grimshaw in the *Dublin Journal* for 1876, in which an erythematous inflammation of the face and legs was followed by inflammation of the lymphatic trunks in the legs, gastric pain, abdominal tenderness, and a tender and enlarged spleen. There was no rigidity or tympanites, and it was presumed that the lumbar glands were implicated. Dulness over the right lung and slight cough came on at a later date, after which the patient recovered and left the hospital.

Again, a lymphangitis may be propagated from one set of vessels to another which possess a common lymphatic system—i. e., terminate in the same group of glands. Thus a woman with a burn on the finger has red lines, showing a lymphangitis, extending up the forearm, and some enlarged and painful glands in the axilla. She also has an abscess on the outer and anterior part of the mamma on the same side, which is connected by similar red lines with the axillary glands. There is no lesion of the nipple, areola, or other part of the breast. (Lucas-Championnière.)

The rapidity with which a lymphangitis may be developed is shown by one of Mr. John Hunter's cases. "The skin being pricked by a needle which had never been used before, or touched any infectious or irritating substance, occasioned the lymphatics of the arm to inflame, and show themselves in the form of red lines running towards the axilla; in consequence of this, some one of the glands there also inflamed and swelled; the patient had rigors and sickness, and all this in the space of a few minutes." The quickness with which it may proceed to a fatal termination is illustrated in a case seen by Le Dentu. A man from whose first metatarsal bone a sequestrum had been removed, was seized some days after the operation with a sudden rigor, and at once passed into a deep coma. The next day the whole of his leg was covered with networks of inflamed lymphatics. He remained comatose until his death, which took place in a very few days.

Varicose dilatations of lymphatics are now well known, both as affecting the trunks and the networks. I would ask your attention to some points in their history and appearance which illustrate important differences in the anatomy of the two sets of vessels. Many of the cases are congenital, but numerous acquired examples have been recorded.

Dilatation of the superficial networks has generally been observed on the inner part of the thighs, the scrotum, the penis, and the lateral surfaces of the belly. It is characterised by little elevations, close together, papular at first, and vesicular afterwards, when it has been compared in appearance to grains of boiled sago. The vesicals are translucent, filled with a limpid fluid, and can be emptied by compression. They may be grouped regularly or irregularly. If one or more vesicles burst, a lymphorragia ensues, which may be enormous, and this may continue during the lifetime of the patient, or spontaneously cease. The plexuses may undergo dilatation separately, but more usually this is secondary to a similar affection of the trunks.

Dilatation of the superficial trunks is even more frequent than of the networks, and they may assume either a cylindrical or an ampullary shape. They occur also on the inner side of the thigh, but have been seen at the bend of the elbow, in the perineum, in the ham, and on the prepuce. Sometimes a single ampulla only may exist. The tumours formed by these varicosities are soft, fluctuating, indolent, and mobile. They are sometimes attended with a local œdema below the tumour, resulting from the obstruction in the lymph-vessel. An accident or a spontaneous rupture may cause a lymphorragia, as in varicosities of the networks, but this is more unusual. If inflammation attacks dilated lymphatics, either in plexuses or as trunks, it spreads very rapidly, and is soon fatal.

Varices of deep lymphatics are much less known than the superficial cases. The cases which have been recorded as such under the terms of macroglossia and macrochilia are really cases of cystic degeneration of the lymphatic vessels and networks of the tongue and lips, in which the connective tissue is also involved, so that they rather come under the term of lymphangiomata than pure varices. There can, however, be little doubt that even in these cases a primary stasis in the lymph-channels is the starting-point of the affection, and that the amount of cavernous formation depends on the length of time during which the disease has existed, and the extensibility of the vessels involved.

In connexion with deep varices, I would refer to the remarkable example observed by Virchow in a new-born calf, where, in consequence of thrombosis of the external jugular vein, the mouth of the thoracic duct was occluded, and nearly all the internal organs were dilated to the utmost by varicose lymph-vessels filled with a slightly sanguinolent fluid. The intestines were covered everywhere with broad bead-like canals, arranged so closely together that the intervening tissue could be scarcely recognised. A well-

known case by Amussat, cited by Breschet, in which many of the lymphatics of the viscera were as large as quills, is a more complex example, and was probably a congenital malformation of the lymphatic system.

The lymphatic vessels, after a longer or shorter course, find their way into the two main trunks, the left or thoracic duct, and the right or lower lymphatic trunk. These usually terminate at the junction of the internal jugular and subclavian veins of their respective sides. Mascagni, Haller, and Cruikshank never saw any variations from this arrangement, but undoubtedly such do occasionally occur. In 1825 M. Lippi described the lymphatics of the digestive system in man and mammalia as ending in the vena portæ, the internal pudic, the iliac, the renal veins, the inferior vena cava, and even in the pelvis of the kidney of the ureter. These were errors, and he probably mistook small veins for lymphatics, for he was in search of a short path for the lymph into the blood stream. We must not, however, positively affirm that no lymphatics terminate in the abdominal veins, for Nühn, of Heidelberg, refers to three cases in which he saw them thus ending—viz., once into the inferior vena cava, and twice into the renal veins; and Petrel has seen them communicating with the portal vein, renal veins, and vena azygos. Other observers of great accuracy have also seen them open into other large veins. Thus Stenson mentions one as going into the superior cava; Wepfer another into the vena azygos; Schmiedel a third into the internal iliac vein. Verneuil has followed some into the axillary veins, and Meckel several into the vena portæ and vena cava inferior. These observations have been questioned by many writers, but the accuracy of such anatomists is too well known for any cavilling as to their truth.

Do the lymphatics communicate with the vascular system in the glands? The necessity of some such communication has been assumed by some physiologists in order to explain the small size of the thoracic duct in comparison with the large number of lymphatic and lacteal vessels, and the prolongation of life in cases of chronic obliteration of the duct. Anatomical support to such a view has not been wanting, and Fohmann and Lane especially defend this idea on the following experiment. If the afferent lymphatics of a gland be injected, the fluid passes out both by the efferent vessels and the veins, or even exclusively by the veins. This fact is well known to everyone who has tried to inject them. But Cruveilheir distinctly states that in every case in which this occurred in his experience, the gland had undergone some change in texture, or else sufficient force was used to produce extravasation. The reverse experiment of injecting the lacteals through the branches of the mesenteric veins coming from a gland cannot be performed. Moreover, their non-communication is clearly shown by all recent microscopical research.

The lymph-follicles are found especially along the mucous tract of the alimentary canal. They are most marked on the posterior third of the dorsum of the tongue, in the tonsils, the wall of the pharynx and œsophagus, as the solitary glands of the stomach and intestines, and as the Peyerian patches in the small intestine. Their characteristic tissue is also infiltrated into the basis substance of the villi, and into the connective tissue which intervenes between the follicles of the intestine. But they are not limited to the digestive tract, for they occur in the conjunctiva, in the mucous membrane of the Eustachian tubes, larynx, trachea, and bronchi, and more sparingly in the bladder and vagina. They form the Malpighian bodies of the spleen and the substance of the thymus, and some are found in connexion with the pleura and peritoneum. Finally, the red or fœtal marrow of bones presents some features which have led modern histologists to include it in the same system. Lymph-follicles are composed of a reticulum of stellate cells, whose meshes are thickly crowded with colourless nucleated corpuscles. The supporting or adenoid tissue may be aggregated into masses, as in the Malpighian bodies of the spleen, or uniformly diffused, as in the basis-substance of a villus. Sometimes, as in the tonsils, it may be both aggregated into well-defined masses and diffused into the surrounding connective tissue. The follicles are very vascular; and the capillaries run into the centre along the supporting tissue and form a wide-meshed plexus. The great extent of this lymph-follicular tissue and its anatomical distribution have not attracted sufficient attention in reference to the spread and location of diseases of the lymphatic structures. I do not refer to such well-known examples as the ulceration of Peyer's patches and of the solitary glands in enteric fever, or to tubercular ulceration of the larynx and intestines originating in the lymph-follicles in those regions; but to the fact that tumours, characteristically lymphatic in nature, may affect such lymph-follicles only, or in conjunction with the lymphatic glands elsewhere. All, or nearly all, the lymph-follicles along the alimentary tract may be affected, and, coincidently, an increase in the white corpuscles of the blood may be found, a veritable leucocythæmia. But this is by no means an invariable concomitant; the hypertrophy of the lymph-follicular tissue does not of necessity induce a leucocythæmia any more than does hypertrophy of the lymphatic glands proper. The enlargement may occur as a simple infiltration or as a definite tumour, or ulceration may supervene, and extend beyond the lymph-follicles in which it originates. Other tumours which especially affect the lymphatic tissues may begin in these situations, as well as the pure lymph adenomata.

The lymphatic glands are abundantly distributed along the course of the larger lymphatic trunks. Each gland receives several vasa afferentia, and from it larger but less numerous vasa efferentia proceed at a depression called the hilus. It is invested by a capsule of connective tissue containing some plain muscular fibres. It is divided into a cortical and a central portion, the latter being the more deeply coloured. From the capsule thin trabeculæ pass into the cortex, and divide it into a great number of alveolar spaces in which are contained the follicles of the cortex. The trabeculæ do not form perfect partitions, but leave spaces (the lymph passage) by which adjacent alveoli become continuous. The follicles are composed of a reticulum of stellate cells, with crowds of small corpuscles (lymph-corpuscles) imbedded in the meshes. Around each follicle is a space traversed by the reticulum, containing a few corpuscles only, and these can be readily displaced. The lymph passage in the cortex is directly continuous with the vasa afferentia. The centre is also traversed by trabeculæ, but these are mere rounded cords arranged very closely together, so as to enclose small cylindrical alveoli. The central alveoli also contain small lymph-follicles, and these, too, are surrounded by lymph-spaces, forming the cavernous system or lymph passage of the medulla. The trabecular cords are covered with an endothelium, continuous with that lining the vasa efferentia, into which the central lymph passages lead.

It will thus be seen that a communication exists between the afferent and efferent vessels through their cortical and central lymph passages. At least one small artery enters a gland at the hilus, and breaks up into branches for the trabecular tissue and capsule, and more especially for the follicles of the gland. The blood capillaries are spread out in the centre of the follicular tissue, and the veins emerge at the hilus. Nerves accompany the bloodvessels, and are supplied to them and to the muscular tissue of the capsule and trabeculæ. Some connective tissue, termed the hilus-stroma, surrounds the artery, veins, and vasa efferentia.

The lymphatic glands have been estimated at between 600 and 700; but the number varies with the individual, and some of them are so small as to escape observation unless diseased. Here and there they are solitary, but generally they are congregated into groups, which are placed along the course of the bloodvessels in the situation in which there is most connective tissue. In the limbs they are found in the ham, the groin, the bend of the elbow, and the armpit; in the neck they surround the common carotid artery and its branches; in the trunk they are very numerous in the vicinity of the aorta and venæ cavæ, and along the large arteries, such as the mesenteric, splenic, renal, hepatic, pulmonary, iliac, &c. The proximity of the glands to these large arteries often leads to a doubt as to whether a pulsating swelling is an enlarged gland in contact with an artery, or an aneurism of the vessels; and their nearness to the veins explains the frequency of œdema from pressure thereon, when, from any cause, the glands become enlarged.

The glands are divided by most anatomists into a superficial or subcutaneous set, and a deep or subaponeurotic set; but this division is strictly true in the case of the inguinal glands only, for in all other situations they are placed beneath the deep fasciæ, and even those in the occipital and mastoid regions are under the special aponeurotic structures of those regions, although they feel as if they were immediately under the skin. In the limbs they are on the flexor or best-protected aspect. They differ greatly in size; most of them are smaller than a large pea, and the largest do not normally

exceed a bean. Many are as small as a millet seed, or the head of a pin, and can only be perceived by the naked eye after they have been injected. The largest are formed in the groin, the axilla, the root of the neck, and the lumbar region, and the smallest at the elbow, in the substance of the parotid, and along the gluteal and ischiatic vessels. Their size is mainly dependent on the activity of the vital functions; they are relatively large in the child, smaller in the adult, and in the aged become so small as to have led to the erroneous idea that they disappear altogether. The more rapid the changes in the tissues and organs the larger and more active are these glands, and the more liable to increase in size from slight exciting causes. The normal changes which occur in the glands as we become older not only show us why acute and chronic inflammation and suppuration should so commonly affect them in early life, but also explain why chronic glandular enlargements, which have persisted until adult life in spite of every treatment, then frequently disappear spontaneously. The gland loses its importance, so both it and the diseased products contained in it undergo a gradual atrophy.

The normal consistence of a gland is that of a semi-solid substance like the liver or kidney, and any greater degree of softening is due to disease, or is a post-mortem change.

ON A CASE OF SARCOMA OF THE IRIS AND CILIARY BODY.

BY JAMES E. ADAMS, F.R.C.S.,
SURGEON TO THE LONDON HOSPITAL, ASSISTANT-SURGEON TO THE ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.

THE importance of the early recognition and removal of intraocular sarcomata is so great that I think it desirable to give publicity to the following case:—

Lucy S——, aged thirteen, was brought to me at Moorfields in the summer of last year. She was a particularly well-grown, good-looking child, presenting no indications of inherited syphilis. As will be seen from the description below, suspicions on this point were aroused, but nothing whatever could be elicited to confirm those suspicions. When first seen the left eye presented the following appearances. There were in the deeper layers of the cornea several round opaque spots exactly like those usually seen in keratitis punctata; at the lower and *inner* part there was a very firm posterior synechia, which did not yield in the least to atropine, and at the lower and outer part of the anterior chamber was a roundish brown mass about the size of two ordinary pins' heads. It appeared to be quite smooth on the surface; its lower part was concealed in the receding angle between the iris and cornea; no vessels at present visible on its surface. The opacities in the cornea, the adhesion of the iris to the capsule, and the resemblance of this lump to a deposit of lymph, led to the suspicion that it was an unusual form of specific kerato-iritis, and treatment was adopted accordingly. After a few weeks of mercurial treatment, not only did no improvement take place, but the original mass increased in size, and another smaller one sprang up close by its side. A week later a few minute vessels were visible on the surface of the larger growth. There was now little doubt that the mass was a tumour of some kind, probably a sarcoma. Seeing that the little second tumour appeared to rise out of the receding angle, I had grave doubts about the tumour being primarily connected with the iris, and thought that it probably sprang from some deeper parts of the ciliary region. On this ground I advised enucleation, although the eye still had fair vision (I think $\frac{2}{3}\frac{0}{0}$); some of my colleagues advised an attempt at removal by iridectomy; but feeling confident in my diagnosis, and remembering a case reported in the Clinical Society's Transactions by Mr. Brudenell Carter, I adhered to my own opinion and enucleated, regarding the operation as necessary to save the patient's life.

The tumour, which was a round-cell sarcoma, had the attachments shown in the accompanying diagram. Seeing its attachment to, and probable origin from, the sclero-corneal junction, and the secondary deposits in the muscle, we may say that any attempt to save this eye would have been worse than useless. It is interesting to note that in Carter's case of sarcoma of the iris there were similar deposits in the cornea.

a, Sclerotic; *b*, choroid; *c*, cornea; *d*, ciliary muscle; *e*, iris broken off; *f*, tumour; *1*, *2*, secondary deposits of the tumour. In the neighbourhood of the canal of Schlemm a portion of the growth may be seen to have invaded the sclerotic.

Dr. Kipp, of Newark, N.J., has published a very interesting case of sarcoma, in which the tumour was clearly growing from the iris, its margin being 1½ mm. from the periphery of the cornea, in which he successfully removed the growth by an iridectomy, and no recurrence had occurred eighteen months after.

The essential difference between these two cases is that in Kipp's case the limits of the growth were visible, in mine the outer part of the tumour was out of sight. Kipp mentions that in one case by Graefe the eye was enucleated for a tumour which was proved to be limited to the iris, while vision was still unimpaired. The tumour was said to occupy the lower two-thirds of the anterior chamber, but it is not stated whether the whole circumference of the tumour was visible or not. In two other similar cases enucleation was performed, but in these the sight was more or less destroyed.

It is impossible to lay down any rule in such cases, but I should certainly be disposed to try removal of the growth by iridectomy in all cases where the whole circumference of the tumour was visible, but in any other case where the growth appeared to be attached to, or to spring from, the extreme periphery of the anterior chamber, I think enucleation would be the safer proceeding.

CASE OF RUPTURED AORTIC SEGMENT.

BY ARTHUR W. FOX, M.B.,
PHYSICIAN TO THE EASTERN DISPENSARY AND BELLOTT'S (MINERAL WATER) HOSPITAL, BATH.

THE following case occurred in the practice of my friend and colleague Mr. H. C. Hopkins, by whose courtesy I was enabled to examine the patient and take the few brief notes I propose publishing.

R. P——, aged thirty-eight, a married man, rather below the middle height, of slight but muscular build, complexion fair, by occupation a painter, and member of the fire brigade, consulted Mr. Hopkins on July 15th, complaining of pain in his chest and difficulty of breathing. Except an occasional attack of colic, and two or three times when he had suffered from subacute rheumatism affecting his feet and knees, he had enjoyed excellent health, and was capable of active exertion

of all kinds up to July 10th, when he was summoned during the night to go to a fire. He hurried off as fast as possible to get his engine. While running he felt "something give way" in his chest; this was immediately followed by pain and difficulty of breathing. Mr. Hopkins found, on examining him, a loud double murmur all over the cardiac region.

On July 18th I saw him with Mr. Hopkins. He was in bed; countenance and general aspect of marked distress; great subjective and objective dyspnœa; he complained of difficulty of breathing and pain in the chest, which he referred to the lower sternal region. On examination of circulatory system, heart's apex imperceptible to sight and touch, with marked diastolic thrill all over cardiac region. There was hardly any dulness on percussion over the heart, evidently from a thin layer of emphysematous lung and probable stiffening costal cartilages; on auscultation, a loud prolonged musical diastolic murmur was audible all over the cardiac region, its maximum intensity being situated in the aortic area; at the mid-sternal base and aortic cartilage it was preceded by a short systolic murmur, which was loudly propagated into both carotids, and was heard in the back, on both sides of the spine; there was no second heart-sound audible in the carotids, neither was there any murmur heard in either brachials or femorals; there was visible pulsation of carotids, but no fulness or pulsation of the jugular veins, neither was there epigastric impulse; the radial pulses were visible and locomotive, of equal volume, jerking in character, a little irregular, about 84. His other symptoms were apparently normal; there was no albumen in his urine.

In the course of a month I saw him again. His cardiac physical signs were the same as when last seen; there was some dulness on percussion in infrascapular region on both sides, with feeble breathing and crepitation. After this his urine became albuminous and his legs anasarcous, and during the last fortnight of his life Mr. E. Field, who took charge of the case, found abundant evidence of fluid in both pleural cavities; his urine also was highly albuminous, but Mr. Field was unable to find any casts. He died on Sept. 5th.

The autopsy was made eighteen hours after death on Sept. 6th, in my presence, by Mr. Hopkins. Body somewhat emaciated; rigor mortis passing off; legs anasarcous. Thorax: Costal cartilage partly ossified, but could be cut through with the knife by using considerable force. Pleural cavities contained a quantity of fluid. Lungs emphysematous at anterior margin; otherwise healthy. Pericardium normal. Heart weighed twenty ounces; general dilatation of cavities; right auricle contained a fleshy clot adherent to the anterior wall; right auriculo-ventricular orifice admitted four fingers. Tricuspid valve normal; left ventricle four-fifths of an inch in thickness; left auriculo-ventricular orifice admitted three fingers; mitral valve normal. Water poured down the aorta flowed freely into the ventricle; the anterior aortic segment hung down like a loose flap into the ventricle, its left angle being torn away from its point of attachment. There was a small white vegetation between the left posterior segment and where the anterior segment had given way; adherent to the ruptured segment was a cord-like clot nearly an inch and a half long; this floated freely up the aorta. There was a small spot of atheroma at the orifice of the left coronary artery. The two posterior aortic segments were very slightly thickened. Pulmonary artery normal. His other organs were not examined.

Remarks.—From the nature of the cardiac physical signs in this patient, and his being in excellent health and capable of active exertion up to the 10th of July, when, during the act of running, he experienced the sensation of something giving way in his chest, and this being followed by pain and dyspnœa, I formed the opinion, in Mr. Hopkins concurred, that he had probably ruptured an aortic segment. It may possibly be contended that there was some slight degeneration of the valves prior to the presumed date of the rupture, and this, as Dr. Fagge (article "Diseases of the Valves of the Heart," Reynolds' System of Medicine, vol. iv.) remarks, is a supposition very difficult to negative; but from the history of R. P——'s case, and the appearance of his heart after death, I believe that the immediate cause of rupture was the violent exertion he made in running for his engine. The musical diastolic murmur was heard unusually loud under, and external to, the left nipple. I mention this as, according to Dr. Fagge, Dr. Balthazar Foster considers that, when such a murmur is heard at the apex, it is due to incompetence of the "left aortic segment," and he appears to attach great importance to this with regard to prognosis. Now, as the majority of observers are agreed that the great proportion of nutritional blood-supply to the heart takes place during the period of aortic recoil, Dr. Foster infers that life is more likely to be prolonged when the ruptured segment has no coronary artery in relation to it. He speaks, however, of this segment as being the left, whereas the position assigned to the aortic segments and sinuses in "Quain's Anatomy" (eighth edition), and by the late Dr. Sibson (article "Position and Form of the Heart," Reynolds' System of Medicine, vol. iv.) are as follows: one anterior and two posterior, and that the right or anterior artery arises from the anterior sinus, while the left or posterior artery arises from the left posterior sinus. The segment, therefore, to which Dr. Foster refers, must be the right posterior segment. Dr. Balfour (Diseases of the Heart), in alluding to this observation of Dr. Foster's, speaks of this segment as "the posterior aortic segment of the semilunar valves." The loudness of the diastolic murmur at the apex in R. P——'s case, and the autopsy disclosing a ruptured anterior segment, indicate that in a presumed case of ruptured aortic valve we ought to hesitate in pronouncing which of the segments has undergone rupture, and should certainly not permit it to influence our prognosis. There is a point of interest in connexion with the weight of R. P——'s heart. Unfortunately, as his kidneys were not examined, it is impossible to say what part they may have played in the production of the condition, though Dr. Peacock (article Weight and Size of the Heart, "Reynolds' System of Medicine," vol. iv.) refers to the case of a man, aged thirty-six years, who only survived the date of rupture of an aortic valve three months and a half, the weight of his heart being twenty-three ounces.

Bath.

CASE OF STRICTURE OF THE RECTUM, TREATED BY EXCISION OF THE STRICTURE.

BY D. LOWSON, M.D.

MRS. S——, aged thirty-four, had complained for eight years of symptoms of stricture of the rectum; and though during that period she had been frequently under medical treatment, and had derived considerable relief, yet the improvement lasted only for a short time, and about two years ago she was suffering more than at any previous period. The motions, which had been narrowed for years, had become much more difficult to pass, and defecation could not be effected without severe straining and considerable pain, and was often accompanied with blood and matter. Hardened masses were felt along the whole course of the colon as far as the cæcum, disappearing after laxatives and the free use of the enema, and again collecting soon after the discontinuance of these measures. The stricture itself was felt about two inches above the anus, was hard and annular, and at some points ulcerated. It was movable on the coccyx behind, as well as on the vagina in front, and, just fitting the tip of the finger, it could be pushed upwards and drawn downwards freely within the surrounding structures. The symptoms all pointed to a case of simple stricture. There was no great irregularity of surface, and, after an existence of eight years, only a small extent of bowel was affected. There was no excessively fetid discharge, as is the case in most syphilitic or cancerous strictures; and, in addition, the patient was not suffering constitutionally, the appetite and general health being good.

Finding that in the course of former treatment dilatation had not been resorted to, and having first cleared away the masses of scybala filling up the large intestine, a process which I found considerably dilated the stricture, I gradually completed the dilatation by bougie. She was for the time relieved, but a month afterwards I found the stricture as before. The bougie was again resorted to, but the irritation caused by it became so great that its use had to be discontinued. Mild laxatives and frequent emollient enemata soothed and relieved the irritated bowel, but dilatation could

not again be borne, and the symptoms of stricture became aggravated.

For twelve months the patient had been under treatment without any marked improvement in the condition of the stricture, and she now became very anxious to have something done for her permanent relief. Dilatation having proved unsuccessful, the idea of colotomy presented itself, but under the circumstances it seemed rather an extreme measure; and excision of the lower part of the rectum, although strongly advocated by high authorities for cancer, has the disadvantage of destroying largely or entirely the action of the sphincters. The removal of the stricture alone seemed the most feasible operation. For, by cutting out the narrowed ring, and stitching together two pieces of bowel which were healthy and had sustained no loss of substance in their circumference by the ulcerative process, a union might be expected free from contraction; and approaching the rectum from behind by an incision extending from a little behind the anus to the tip of the coccyx, and by keeping as near as possible the mesial line, so as to run parallel with the fibres and divide into halves that part of the external sphincter which lies between the anus and coccyx, its action would not be ultimately interfered with, and the internal sphincter would be preserved entire. Mr. Jessop, of Leeds, who saw and examined the case minutely, considered it a very favourable one for operation, as did also Mr. Knaggs, of Huddersfield. Accordingly, on the 5th of December, 1877, having cut down in the mesial line in the interval between the coccyx and lower end of the bowel, I divided the posterior part of the external sphincter as much as possible into two lateral halves, and turning these aside with the intermingling fibres of the levator ani, I introduced the finger inside the rectum, and pushing it firmly into the stricture I pulled it down from its situation in front of the coccyx, and made it project backwards through the external wound. Reaching the wall of the rectum, and having dissected the surrounding structure from its lateral aspects as far forwards as the recto-vaginal septum, I cut the bowel through above and below the stricture, dissected the ring off the posterior vaginal wall, and stitched the two pieces of bowel together with catgut sutures. Two small vessels spouted, but did not require ligature.

After the operation the temperature gradually rose, reaching its maximum—102°—on the evening of the third day, and, falling again, became normal two days after. The pulse corresponded with the temperature, being 120 the third day after the operation. The catheter had to be used for a fortnight. There was never any abdominal tenderness nor other symptom of peritonitis. The vaginal pipe of an ordinary Higginson's enema was introduced into the rectum on the conclusion of the operation, and the bowels were kept confined for five days. After this, however, diarrhœa came on, and the management of the wound became difficult. A small-sized Ferguson's speculum was introduced in place of the vaginal pipe, and through this the bowel was cleansed. The stools now became liquid and very irritating, were mixed with small scybala, and came away partly by the tube, but also by the wound, excoriating the integument in its vicinity. Opium had to be prescribed freely on account of the pain, and yet the nights were restless and the appetite became poor.

About three weeks after the operation the lower fragment of bowel gave way behind, probably from the continued pressure of the speculum, and immediately all the symptoms began to improve. There was now no pain except when the bowels were moved; there was considerable retentive power except when the bowels were relaxed; the discharge became less irritating; the excoriations healed; and the blue line began to appear at the margin of the wound.

March 9th, 1878.—The condition of Mrs. S—— has greatly improved. The bowels now act regularly; there is neither pain nor straining at stool; the motions are natural in size, but flattened; and the sphincter power is good except when the bowels are relaxed, when she finds retention is not so perfect as formerly.

March 31st, 1879.—A considerable amount of cicatricial structure has formed around the seat of the operation, and some contraction has taken place, but a medium-sized bougie passes easily, and the motions without difficulty. The symptom complained of most is "painful sitting." To sit comfortably she is obliged to lean well forward, or inclined to one side in a semi-recumbent position. Except during an attack of diarrhœa, which she is sometimes subject to, her sphincter power is perfect.

The great difficulty in the case was the after-treatment. The passage of fæcal matter of a very irritating nature over the wound, and the tendency to diarrhœa common to most rectal operations, retarded the healing process, which seemed also to be delayed by the action of the internal sphincter, just as in the cases of fistula. There are few strictures situated so low down as to come within the range of the foregoing operation; but in cases of the sort I think that it might be advisable to perform colotomy in the first instance, so as to carry off the fæcal matter by the loin; then, after an interval, the stricture in the rectum might be removed, and a good union secured, and subsequently the artificial anus closed and the motions allowed to pass off by their former channel.

Huddersfield.

TREATMENT OF WHOOPING-COUGH BY ATROPIA.[1]

BY ARTHUR WIGLESWORTH, L.R.C.P., M.R.C.S., &c.

THERE are few diseases that have such a host of remedies assigned to them as whooping-cough. Scarcely a year passes but some new remedy is vaunted as a "specific," has a brief life of notoriety, and then passes into oblivion. Yet if each remedy is classed, we find that those medicines that are termed "neurotics" have the larger number of advocates, and live as it were the longest life. And this is what we should *à priori* expect when we remember that the disease is essentially a "neurosis"; yet having said this, we have said pretty nearly all that we can concerning its etiology. We know not how it originates, nor how it is propagated; and concerning the causes of its ofttimes erratic career we are still in ignorance. The fact, however, is patent, that it is one of the most uncertain of all infectious diseases. Beginning mildly, it will terminate in death; commencing with severity, it will suddenly become benign; and when to all appearance its course has ended, it suddenly reappears, after an interval of weeks or even months. Its very advent is uncertain: sometimes preceded by severe catarrh, yet often the characteristic "whoop" being the first circumstance to arouse attention. No wonder, then, that a host of remedies have been tried, and with varying success. Yet no remedy can be worthy of the name "specific," unless, indeed, under the various aspects that the disease presents, certain definite curative results follow its administration—results so certain that they can be safely predicted—results that the most unlearned cannot fail to perceive.

Now, without at the present time claiming for atropia the name "specific" for whooping-cough, I am nevertheless constrained to say that in my hands it has advanced nearer to that position than any other remedy that I have either used or seen administered by others; and that so far it has been an unexpected and unequivocal success. I was led to try atropia by reading Trousseau's remarks concerning the ofttimes beneficial results obtained from belladonna; for it appeared to me that if the experimental treatment was to be carefully pursued, more reliable preparations than the extract or the powder of belladonna ought to be used. And the alkaloid seemed to be more likely to prove useful—first, because of its unvarying strength; secondly, because the dose could be the more easily regulated in consequence; thirdly, because it is nearly tasteless. I therefore chose the solution of the sulphate of atropia (B.P.), which contains 1-120th of a grain in each minim—a most convenient strength; and in every case directed that it should be administered in the morning fasting. Also, whenever it could possibly be accomplished, I directed that the number of paroxysms should be carefully noted from 8 A.M. to 8 P.M. In this I departed from Trousseau's recommendation that the number of paroxysms should be noted for twenty-four hours; because it is practically useless to attempt to get trustworthy statistics during the night except in those very severe cases where the attendance of a night-nurse is imperative; and, further, if we find that there is

[1] Read before the Liverpool Medical Society.

either an increase or a diminution during the day, we may feel quite sure that the same ratio will exist during the night.

I commenced, then, over four years ago to treat all cases of whooping-cough solely with the solution of sulphate of atropia, from infants two months old to the adult. It required some little time to find out the average dose to begin with; but I now begin with 1-120th of a grain (or one minim in a drachm of water), in children from one to four years of age, either diminishing or increasing the dose as occasion dictates; and, except in very severe cases, only order it to be given once a day; but when the nightly paroxysms are very severe, I order half the dose to be repeated about an hour before bedtime.

The results that follow its administration may be summed up thus:—1st. There is a steady diminution in the *number* of paroxysms. 2nd. There is a diminution in the *duration* of the paroxysms. 3rd. There is a change in the character of the "whoop," as if the vocal cords were not so closely approximated. Further, if the atropine is withheld the beneficial effects derived from it subside.

Now, these results follow more or less speedily the administration of the remedy, and appear to depend upon the susceptibility of the patient to the action of atropia. In a few cases thirst may become a prominent symptom, which subsides, however, upon a diminution of the dose. In only one case has the sensation of "falling down" been experienced, and this disappeared with a reduction in quantity.

I append a few cases, taken at random from details before me. In one the remedy was commenced as soon as the characteristic whoop was definitely established, and the daily number of paroxysms ran up from eleven to twenty-six in four days; by that time the atropia seemed to have begun to act, and in fourteen days the number was reduced to two. In another case the number was twenty-four on the second day after the atropia was commenced, and a similar decline took place. Again, twenty-six was the number first registered; in three days it had fallen to thirteen, remained stationary for a week, then steadily declined. In another patient, aged ten years, the cough was reported as incessant; in a week there were no paroxysms to record. One case I should like to give more in detail. The patient, a little girl, aged five, had passed through a severe catarrhal stage, and the "whoop" had become well established, when she had a sharp attack of measles, but no diminution of the cough. The rash was nearly gone when acute bronchopneumonia of both lungs set in, dulness on the left side being well marked half-way up the lung, respirations seventy-five in the minute, dyspnœa urgent, recumbent position impossible, pulse 170, fluids could only be partaken of in single mouthfuls for "want of breath." Each pertussal paroxysm caused the greatest distress. In this case I ordered 1-120th of a grain of sulphate of atropia *twice* a day with the most satisfactory result. The cough became less frequent, and its duration was decidedly shortened and less violent. She was also ordered in the interval carbonate of ammonia and decoction of senega. Under this treatment the child slowly rallied, and is now perfectly well. Here the gravest and most imminent danger existed, and I doubt whether it was possible for the child to have lived had not the paroxysms of whooping-cough been curtailed in frequency and duration. It is worthy of record that a near relative who was in close attendance upon the child was called away for forty-eight hours, and upon her return spontaneously remarked "that the character of the whooping-cough seemed to have become quite different during her absence." A good example recently occurred in the family of a clergyman, three of the children being attacked with whooping-cough coincidently with their neighbour's family with whom they played every day. When I first saw them the cough was well established, severe in character, with constant vomiting. In a month all trace of the disease had left them, whilst at the end of two months their neighbours' children still had it.

Such briefly has been my experience of the value of atropine. When the complete cure was not speedy, the diminution in the paroxysms was so marked, and so rapidly was the affection alleviated, that the children seemed not to be at all inconvenienced. I should say that in by far the majority of cases the "whoop" had subsided in a month, sometimes in three weeks. In only one case did the remedy seem ineffectual, and that was a child about seven years of age, brought to me from some distance. I had doubts about the remedy being properly administered and persevered in. In three weeks it was reported no better. Six months after the cough was stated to be just the same, minus the "whoop." A close examination of the chest failed to detect any abnormal influence at work. I was inclined to the idea that there was a little hysteria, the child's health continuing perfectly well and appetite good, and yet the cough was reported as incessant, and preventing sleep. This was the only instance in which decided and almost immediate relief was not obtained.

A few words as to the *modus operandi* of the drug. Whooping-cough is essentially a "neurosis," and if we are to judge from the sensations described to us by those who are old enough to analyse their feelings, it is the laryngeal branches of the pneumogastric nerve that are primarily affected. The result of this affection is that at intervals a series of reflex phenomena present themselves, varying in duration and intensity, which involve nearly all the branches of the pneumogastric. The frequency, however, of the paroxysm is no index to its severity, and conversely; nevertheless the frequency and intensity of the phenomena exhibited may be, and often are, coincident. Is there any explanation to be afforded of this? I think so. No one who has much to do with the ailments of childhood fails to observe what very different effects are produced by apparently the same irritation. In one there are excited convulsive movements, fever, restlessness, &c.; whilst in another, perhaps of the same family, there is scarcely any systemic disturbance produced. This is probably due to the inherent susceptibility of some children to "sympathetic" action and reflex phenomena; and as nervous exaltation, or "nerve tension," is far higher in children than adults, we see, as a rule, greater severity in the paroxysms of youthful than adult life, and—according to idiosyncrasy—greater severity and consequent prostration in some children than in others.

Concerning reflex phenomena, Schroeder van der Kolk has shown that the medulla oblongata is the principal centre whence the more general reflex movements derive their origin, having a special capacity for exciting them; further, that, even in a healthy state, but in consequence of augmented irritation, this capacity is greatly increased, and it will sometimes rise so high that reflex phenomena will manifest themselves spontaneously, without further eccentric irritation. We can therefore understand how the peculiar irritation (which is probably excited at the periphery of those portions of the laryngeal nerves which supply the larynx and trachea), having been transmitted to the medulla oblongata, calls forth those reflex actions which in their entirety produce the phenomena of whooping-cough; and, further, if this irritation is constantly propagated, either through the action of a morbidly excited sympathetic nerve or from idiosyncrasy, the medulla oblongata may at length become so sensitive, of such exalted capacity, that severe reflex phenomena, even to the extent of convulsive action, may spontaneously arise. And it is probable that in all cases of whooping-cough the degree of excitability capable of being produced in the medulla oblongata is the explanation of the various degrees of intensity in the reflex phenomena which we are so frequently called upon to witness; or, in other words, the intensity and frequency of the paroxysms of whooping-cough are in direct ratio to the amount of excitability to which the medulla oblongata is inherently liable. Hence the treatment of whooping-cough should be directed, primarily, to diminishing the capacity for reflex excitability, either eccentric or centric.

Of all drugs there are none that have such a peculiar and special effect upon the pneumogastric nerve as belladonna, though it is by no means limited to that nerve. It is essentially a nervine sedative, and has a capacity for diminishing both sensibility and irritability when these are morbidly increased. Its primary effects are manifested upon the mouth and throat, producing thirst. A further action is upon the laryngeal muscles, rendering articulation imperfect, or preventing it altogether. So also upon the constrictors of the pharynx, that deglutition becomes difficult or impossible. These and other effects are produced more or less according to the amount taken. It is reasonable, then, to attribute the beneficial effects of atropia in whooping-cough chiefly to its effect upon the laryngeal branches of the pneumogastric nerve, diminishing the exalted sensibility and irritation which are known to exist, and which, by constant propagation to the medulla oblongata, increase in that body the capacity for reflex phenomena. But it is also probable that atropia has a very decided effect upon the medulla oblongata itself, rendering it less capable of exciting reflex action. Dr. Kroon's experiments led him to the con-

clusion that valerianate of atropia had a very special and direct effect upon it, diminishing its inherent capacity for reflex phenomena. The almost specific effect of belladonna in preventing nocturnal seminal emissions is also probably due to this action.

I think, then, the conclusion is justified that, by its action upon the pneumogastric and sympathetic nerves, and also upon the medulla oblongata, atropia relieves, and ultimately cures, the neurosis called whooping-cough; and that in those cases where, from idiosyncrasy or easily-excited sympathetic action, the intensity and severity of the reflex phenomena are greatest, the beneficial action of atropia will be more marked.

Liverpool.

SPREADING GANGRENOUS CELLULITIS.

BY P. BLAIKIE SMITH, M.D.,
PHYSICIAN, ABERDEEN GENERAL DISPENSARY; LATE RESIDENT PHYSICIAN'S ASSISTANT, MIDDLESEX HOSPITAL.

THE perusal of two interesting papers upon Spreading Gangrenous Cellulitis, recently published in the columns of a medical periodical, induces me to narrate a severe case of this formidable disease which came under my care some time ago.

Towards the end of March, 1877, I was in attendance on a gentleman suffering from delirium tremens. He was upwards of forty years of age, of large and stout build, and for many years had led a most intemperate life. From past experience of this patient, I had learnt that nothing was of such service to him, when suffering from delirium tremens, as large doses of morphia injected under the skin; and accordingly this remedy was freely used for a day or two, with the result of alleviating all his symptoms.

On March 23rd he complained that when he got up to pass water it came with difficulty—a symptom which was hard to understand, as a careful examination of his urinary organs failed to elicit any cause for its occurrence. The only theory I could entertain was, that the morphia which had been administered was exhibiting in the person of my patient one of its physiological actions. Next day, however, threw more light on the matter, for he now began to complain of pain near the right verge of the anus, where the skin was found on examination to be swollen, hard, slightly red, and tender—a state of matters which led me to suspect a different cause for his difficult micturition. My suspicions were amply confirmed on March 25th, on which day the swelling increased largely, and was accompanied by much pain, radiating to the coccyx and loins. Defecation, as well as micturition, was now both difficult and painful. The temperature reached 102·4°. Three days afterwards the swelling had involved the whole of the perineum to such an extent that the anus could not be seen. The skin was for the most part of a livid hue, hard and unyielding to the touch, with vesicles on the surface here and there; but in the right ischio-rectal region the lividity had deepened into a darker colour, and the unyielding feeling had given place to a crepitating softness. In a word, gangrene was present. Free incisions accordingly were made on both sides of the perineum, resulting in an enormous escape of gangrenous débris, attended by an intolerable fetor from the wound on the right side. The finger passed into this wound discovered a cavity so large that its size could not be made out exactly. The cellular tissue on the left side seemed little affected, and the rectum was free from disease.

From this date onwards (March 28th), every effort was directed to support the patient's strength, and promote the separation of the sloughs, by stimulants, opium, suitable nourishment, and antiseptic injections; but the spreading nature of the affection was not to be gainsaid. On March 29th both sides of the scrotum were attacked, and incisions therein gave vent to much gangrenous matter. By April 2nd, the skin covering the right lumbar, right iliac, and suprapubic regions of the abdomen had become livid and emphysematous, and a sloughing sore made its appearance at the upper and inner aspect of the right thigh, two inches below Poupart's ligament. The fetor arising from the sloughs was now almost overpowering, filling the whole house, nor did disinfectants, though used lavishly, seem to have much effect in abating the evil.

Little more remains to be told. The cellulitis of the abdominal wall continued to spread, and with its extension my patient's strength gradually failed, till, on April 4th, he died exhausted in the struggle with this most loathsome disease.

The case just recorded is similar in many ways to those narrated by Furneaux Jordan and Mr. Jackson. The disease occurred in an intemperate stout man of middle age, who (and this I have not mentioned before) had twice during the last ten years of his life suffered from perineal abscess, the second attack of which had left in the right ischio-rectal fossa a small sinus, which discharged a little pus from time to time. Is it possible that this vulnerable spot in the perineum induced what Mr. Jordan so aptly calls an "explosion" of the disease in that situation in preference to any other? I think so; and will be interested to hear if others have noted a similar connexion in any case of spreading gangrenous cellulitis which may have come under their notice. Throughout the progress of the case the rectum and urethra were unaffected save by pressure, and the urine was free from albumen.

Aberdeen.

NOTE ON DIPHTHERIA-DIFFUSION.

BY ARTHUR DOWNES, M.D., S.SC. CERT. CAMB.

FROM investigation of numerous outbreaks of diphtheria in distinct localities, I have long been led to the conclusion that the dissemination of this disease in rural districts is mainly dependent on the numerous mild *unrecognised* cases, which may generally be discovered about the neighbourhood to which attention has been directed by an appearance of the disease in its severer form. In this dissemination some day-school usually plays a prominent part.

Others notice the existence of these slight cases in infected localities, but have regarded them as primarily non-infectious, acquiring specific diphtheritic infectivity by transmission through successive subjects. I am not aware in what way they consider that these "non-infectious" sore-throats are in the first instance transmitted from person to person so as to acquire this quality of specific infectivity; my own experience, indeed, is that they are simply cases of true diphtheria, so mild in degree that the symptoms, both local and general, are in abeyance, and pass almost unnoticed. The proof of their true character is that under suitable conditions their contagium gives rise to typical diphtheria, and, on the other hand, that they themselves may often be traced to an antecedent case of unmistakable diphtheria. They are decidedly infectious; not so highly infectious, perhaps, in a relative sense, as are the typical and malignant forms, but in the aggregate far more to be dreaded than these as foci of diffusion. As a rule, no medical advice is sought by the patient, who goes about, or attends school, as usual. In sickness returns, however, I have seen these cases returned not only as "sore-throat," but also as "bronchitis," "cold," &c., and, indeed, they are, I believe, *per se*, and without a knowledge of their history, not specifically diagnosable. They generally far outnumber the well-marked typical cases.

A chief feature of diphtheria, noted by most observers, is its association with cold and damp. Damp, whether arising from defects of subsoil, surroundings, or of house construction, is a constant characteristic of those endemic haunts of diphtheria with which I am acquainted. Without prolonging this paper by a discussion of the various views that have been put forward as to the nature of the diphtheria contagium, the supposition may reasonably be entertained, and supported by evidence, that the specific virus may be associated with some low form of *micrococcus*. From the persistency with which the infection hangs about particular spots—which my experience leads me to regard as the starting-points and foci of epidemics—it would appear not improbable that such an organism may survive and develop externally to, and independently of, the human body, spreading, perhaps, as a minute growth over congenial damp surfaces; nor would it be impossible that the influence

of cold and damp upon its activity might be analogous to the effect of those agencies upon some low algoid forms, whose growth appears to be promoted under such conditions. Be this as it may, it is a most important point in practice to see that after convalescence not only clothing but also floors and wall surfaces are thoroughly disinfected and cleansed.

Diphtheria may, I believe, be occasionally conveyed in clothing, and I am personally acquainted with several cases in which the contagion has apparently been carried home from infected houses by parents and others who have themselves shown no symptoms. In none of the epidemics of which I have notes has any relation of the march of the disease to water or to milk-supply been found. As regards milk, however, it must be observed that, from the difficulty of obtaining it, milk enters less into the dietary of most country poor than of their brethren of the town. I should expect, therefore, that if any relation exists between diphtheria-diffusion and milk-supply, it would probably be more demonstrable in an urban outbreak than in a rural.[1] In the country, moreover, filth nuisances, while they appear to determine the localisation of the severer types, and to be occasionally an important factor in the causes of mortality, have not, in my experience, any direct influence on the extension of the epidemic.

These experiences relate only to diphtheria as it occurs in purely rural districts. Its incidence on these, as compared with the general immunity of towns, is one of the most striking features in the natural history of this disease, and in which it stands in bold contrast to most other zymotics. Thus, while of a million children born in the "healthy districts" of the Registrar-General, 10,292 may be expected to die of diphtheria, in Liverpool the corresponding proportion is only 4416. Yet the total death-rate from all causes in the "healthy districts" averages only 16 per 1000 annually, and the density of population in persons to a square mile is but 166; while the death-rate of the Liverpool district (1861–70) averaged 39, and the density was 65,823 persons to the square mile. Without pretending to attempt the solution of this problem, it may be interesting to note incidentally the effect of town air on certain low forms of vegetation. For example, the comparative absence of lichens from towns generally, and their exuberant growth in pure country air, is a well-observed fact; and an eminent botanist recently informed me that he had on this account regarded these plants as a rough measure of the healthfulness of a locality. We may conceive that there may be some constituent of a town atmosphere—perhaps in the smoke—present under ordinary circumstances in such proportion as to be as inimical to the growth of a *micrococcus diphthericus* as to the development of a lichen.

Shrewsbury.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

MIDDLESEX HOSPITAL.

OVARIOTOMY; RECOVERY; UNUSUAL DISCHARGE OF BLOOD FROM THE BLADDER DURING CONVALESCENCE; REMARKS.

(Under the care of Mr. HENRY MORRIS.)

SARAH D——, aged twenty-seven, unmarried, was first admitted, under the care of Dr. Hall Davis, on May 16th, 1877. She then stated that for the last two years she had occasionally suffered pain on the left side of the abdomen, especially after exercise. For twelve months the abdomen had been gradually enlarging, and was still increasing in size. The catamenia were fairly regular, though of late six weeks had sometimes elapsed between the periods. For two years she had been troubled with leucorrhœa, which still continued. There was no cough, or other ailment.

[1] The epidemic in North London, reported upon since the above was written, affords an instance.

At this time it was noted: "Patient is a fairly-nourished, healthy-looking, and rather thin young woman, complaining of pain in the abdomen, which is distended nearly symmetrically. There is a tumour occupying the hypogastric and part of the left iliac and umbilical regions, extending a little above the navel, and slightly into the right iliac and right lumbar regions. It is movable, uniform, and elastic, but not fluctuating. There is resonance in both flanks; the veins of the abdominal wall are slightly enlarged. Measurement of the abdomen at the umbilicus, 32½ in.; organs healthy. The lower part of the cervix uteri is bent acutely forward on the upper part; os uteri closed. Vaginal portion of cervix nipple-shaped."

Eleven days after admission she was attacked by quinsy; the left tonsil suppurated; she quickly recovered.

On July 2nd she was sent into the country, to return for operation after the cleaning of the hospital.

She was readmitted, Oct. 17th, into Dr. Hall Davis's ward, in good health and spirits. The abdomen presented a general enlargement, which was more marked on the left side. The tumour was elastic, smooth, fluctuating, and globular; dull on percussion over an extensive area, as high up as the epigastrium, and outwards on both sides as far as the flanks. The flanks were tympanitic. There appeared to be no adhesions between the tumour and the abdominal walls. The tumour had so grown that the average increase in the horizontal measurements of the abdomen since she was in the hospital before was 1½ in. Temperature 98·7°; pulse 75; respiration 15; urine 1035, acid, no albumen, no sugar.

She was placed in a special ward which had been washed with dilute carbolic acid, and fumigated with sulphurous acid, and at 8.45 A.M. on October 25th, ether was administered and ovariotomy performed by Mr. Morris. The operation was uncomplicated and quickly completed, the cyst being unilocular, free from adhesions, and furnished with a long, broad pedicle. The pedicle was secured by a large clamp, its cut surface touched with solid perchloride of iron, and covered with lint soaked in carbolised oil, and some oiled lint was placed between the clamp and the skin. The edges of the wound were brought together by three deep sutures, which included the peritoneum, and by three superficial ones, all of silk. A piece of dry lint was placed along the wound, and long broad strips of strapping extending from loin to loin were placed across the front of the abdomen, and over all a broad flannel bandage encircled the body. A morphia suppository was introduced. The urine to be drawn off every six hours. She quickly recovered from the effects of the ether, but in doing so she vomited slightly at intervals. At 9.45 four ounces of turbid urine were drawn off; sp. gr. 1037, acid, loaded with urates. During the whole of October 26th the total quantity of urine drawn off was only seventeen ounces. It was turbid, with a heavy deposit of brick-red urates, of sp. gr. 1045, but contained no sugar or albumen. Carbonate of lithia was ordered in five-grain doses three times a day. Mr. Foster, the lecturer on chemistry at the Middlesex Hospital, was kind enough to examine the urine, and reported that it contained 4·86 per cent. of urea. It was also examined by Dr. Brown, who found nineteen grains of urea in an ounce of urine, so that 323 grains were passed altogether in twenty-four hours, being about 180 grains less than the normal average quantity excreted in the same time.

At 6.50 P.M. on Oct. 27th—i.e., about fifty-eight hours after the operation—there was noticed a dark sanguineous discharge from the vagina in less quantity than ordinary catamenia. The quantity of urine passed in the previous twenty-four hours was twenty-one ounces, of sp. gr. 1035, and loaded with lithates. The patient was much troubled with flatulent distension, which was relieved by the passage of an O'Beirne's tube and by the injection of simple enemata.

On Oct. 28th the vaginal discharge had increased, and was equal to an abundant catamenial flow. During the day thirty ounces of urine were drawn off, of sp. gr. 1030, containing many urates, but no albumen.

On Oct. 29th, at 5 A.M., the urine drawn off had a sp. gr. of 1030, was alkaline, and contained one-sixth of albumen. At 9.45 A.M. the urine was again drawn off, the first part of which was clear and the last blood-stained, and had a very dark sediment. The catheter caused no pain; there was no abdominal pain and no sickness. During the day the urine drawn off had the same general characters as above stated; it contained blood-corpuscles, epithelium, and bacteria, but no casts, was alkaline, and of specific

gravity 1025. It now became necessary to draw off the urine more frequently, on account of the feeling of necessity to micturate, so that instead of the catheter being passed every six hours, it had been used six times before 9.15 P.M. The vaginal discharge had greatly diminished.

On October 30th it was noted that she had had during the night some supra-pubic pain, associated with the discharge of urine. The urine which flowed first through the catheter was pretty clear, and was examined separately from that which last escaped from the bladder. It was free from blood-staining, but it was turbid, alkaline, of sp. gr. 1028, and had one-eighth albumen. What passed last was highly blood-stained. The total quantity removed during the twenty-four hours was thirty-four ounces.

On October 31st some urine was voided voluntarily in the afternoon for the first time; forty-four and a half ounces of urine, still blood-stained, were passed during the day. The vaginal discharge had diminished still more. A few remaining shreds of the pedicle contributed to hold the clamp; these were divided, and the clamp removed.

On November 1st the urine was drawn off repeatedly during the night. Its escape was associated with some pain in the region of the bladder. The urine still contained blood, but in smaller quantity. The vaginal discharge was rapidly disappearing. On the 2nd the urine was passed voluntarily and without straining. It was turbid, had a cloudy deposit of mucus, sp. gr. 1023, was alkaline, and contained more than a trace of albumen.

She continued to pass faint traces of albumen with mucus in the urine until December 6th, when it again became acid and of sp. gr. 1020. She was discharged from the hospital well on December 18th, 1877.

Remarks by Mr. MORRIS.—With the exception of the hæmorrhagic discharges, the only thing requiring special comment in this case was the enormous size to which the pedicle swelled after the separation of the clamp. It attained the size of a very large tomato; but gradually dwindled away in the form of discharge, so that when the patient left the hospital there was nothing of it to be seen except a small dimple, at the base of which were a few healthy granulations.

The flow of blood from the vagina, and the discharge of blood with the urine, were doubtless the means which nature adopted to relieve an overflow of blood to the pelvic organs, whither it was directed after the removal of the cyst, and until the circulation had adapted itself to the altered requirements of the body.

The hæmorrhage was regarded at the time as by no means unfavourable towards a good recovery, and may be explained in the following way. The cyst had drawn to it a very large quantity of blood, which necessarily reached it through the uterine and ovarian arteries. After the cyst had been removed, this large quantity of blood was for a time directed into the vessels of the pelvic organs, and caused such a strain upon their mucous membrane that rupture of some of the smaller vessels ensued. This strain would, of course, be first expressed upon the vagina and uterus, and then upon the bladder through the vesical arteries and the vesical offsets of the vaginal artery; lastly, the rectum, to a less extent, through the middle hæmorrhoidal artery, would become congested, but in this instance not to such a degree as to lead to hæmorrhage from the bowel. After a time this congestion of the pelvic organs would gradually subside, and only the quantity of blood requisite for their normal functions would be drawn to them. That the blood in the urine came from the bladder, and not from any other part of the urinary apparatus, is inferred from the absence of any sensation of heat or weight or pain in the situation of the kidneys; from the absence of casts of the renal tubes, or of those slim, maggot-like coagula, or slender, cylindrical pieces of fibrine, which bear evidence of having been moulded in the ureter; also from the fact that, as long as the urine continued to contain blood, that which was first drawn off was clear; for, as Dr. Prout states, "when blood is derived from the kidney, it is, in general, equally diffused throughout the whole urine; on the contrary, when derived from the bladder, the blood, for the most part, comes away in greater or less quantity at the termination of the discharge, the urine having previously flowed off nearly pure."

Discharge of blood per vaginam after ovariotomy is not, perhaps, of such very infrequent occurrence, but the passage of bloody urine gives this case a special and peculiar interest.

NORTHERN HOSPITAL, LIVERPOOL.

CASE OF CONCUSSION; FRACTURE OF BOTH ARMS AND FOUR RIBS; INTERNAL INJURIES; DEATH.

(Under the care of Dr. W. MACFIE CAMPBELL.)

WE are indebted for the notes of this case to Dr. James Allen, the house-surgeon.

George W——, sailor, aged twenty-five, was admitted into hospital on Jan. 5th, 1879, with the following history:—Seven days before admission, while at sea, he was dashed on deck by a heavy wave, and remained quite unconscious for five days. When the ship came into port he was taken to the hospital, and on examination it was found that both humeri were fractured transversely about the middle third. He made no complaint of internal pain, and the only other lesion observable was ecchymosis of the left eye.

On Jan. 7th (temperature 100·6°) he complained of sudden pain over the descending colon and lower costal cartilages radiating over the abdomen, and was ordered poultices and hypodermic injections of morphia. His bowels not having acted for several days, an enema of castor oil was given. The pain continued more or less severely, sometimes entirely disappearing.

8th.—Temperature: Morning, 102·2°; evening, 102·6°.

9th.—Temperature: Morning 104·2°; evening, 101·6°.

His chest was examined by Dr. Dickinson. There was somewhat diminished movement on the left side, and an occasional rub. Pain still present; ordered pill of opium with belladonna every six hours.

10th.—Temperature: Morning, 103·5°. Became delirious, and died during the night.

Necropsy.—Bases of both lungs congested and œdematous; effusion of clear fluid into left pleural cavity; small portion of false membrane on the diaphragmatic pleura of same side. Fracture of sixth, seventh, eighth, and ninth ribs, anterior to the angle. Spleen presented extensive hæmorrhage under its capsule, which in front had given way, allowing the passage of some blood into the abdominal cavity. The spleen capsule was adherent to the diaphragm. Intestines were blood-stained, and there was about half a pint of dark blood in the pelvis. No appearance of peritonitis. About two inches of the descending colon was collapsed, with blood infiltrated into its external walls, and presented a slight twist, effectually preventing the passage of air. The entire colon on both sides was distended with masses of fæces and flatus, also extending to small intestine. Kidneys and liver uninjured. Brain membranes presented evidence of meningitis.

Remarks.—This case is noticeable from the complete absence of early symptoms, pointing to the severe internal injuries. He had on admission no difficulty in breathing, and no crepitus could be made out. Abdominal pain was also absent till four days before death. There was no peritonitis, and the blood-clot in the splenic capsule was quite recent.

COVENTRY AND WARWICKSHIRE HOSPITAL.

SCROFULOUS DISEASE OF THE KNEE-JOINT AND PARTIAL ANCHYLOSIS; EXCISION OF JOINT; ANGULAR CURVATURE OF SPINE TREATED WITH SAYRE'S BANDAGE.

(Under the care of Mr. MILNER MOORE.)

L. B——, aged fourteen, was admitted on September 4th, 1877. Parents healthy; the mother being Maltese and the father English. Patient was born in Malta, where she remained until she was five years old. Two years after arriving in England slight swelling of the left knee was noticed, which slowly increased, until, at the end of three years, she was unable to bear any pressure upon it, and, indeed, carried it in a semiflexed position and walked with a crutch.

When admitted, she was a feeble-looking, sallow, and unhealthy girl; the knee was flexed to a right angle, exquisitely sensitive on the slightest movement; and at the lower dorsal region there was a complete falling forward of the spine, with great tenderness on pressure over that region.

On Sept. 20th she was put under chloroform, and, with the usual antiseptic precautions, Mr. Moore removed the articular surfaces of the femur and tibia and the whole of

the patella. There was but little bleeding, only two small vessels requiring ligature; the wound was closed with carbolised sutures, covered with gauze, and placed upon an excision splint. There was partial anchylosis of the outer condyle of the femur and corresponding articular surface of the tibia, while at the inner condyle there was ulceration of the cartilages without union. The lower end of the femur was so soft as to lead to the suspicion of future trouble, and the long period of subsequent suppuration may be attributed to the condition of that bone.

At the first dressing, three days after the operation, the line of incision was all but united, and the general condition was good.

On Oct. 1st, as the wound was only superficial, antiseptic dressings were discontinued. On the 30th an abscess formed on the outer side of knee, and on Nov. 7th another abscess appeared on the inner side. Two sinuses remained, which continued oozing for many weeks, but at no time could carious bone be detected.

On Feb. 2nd, 1878, a starch bandage was applied, and on March 5th she could walk about the ward with a properly adjusted boot and leg-splint, but complained greatly of weakness in the back, and could not stand long without assistance.

On March 12th a plaster-of-Paris bandage was adapted to the body, the application of which she bore well.

In October this patient walked a mile and a half to be seen at the hospital. The knee was straight and firmly fixed, and all suppuration had ceased. Her complexion was ruddy and clear. She still wore the spinal bandage.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

Cervical Tumours.—Histology of Cancer and Leprosy.—Melanotic Sarcoma of Eyeball.—Lardaceous Disease.

THE ordinary meeting of this Society was held on the 1st inst., Mr. Jonathan Hutchinson, President, in the chair. A few specimens were exhibited, and the discussion on Lardaceous Disease was then resumed.

Mr. MORRANT BAKER showed a man, thirty years of age, with Cervical Tumour of an uncertain nature. He first came under notice at the end of January, with symmetrically disposed tumours in each submaxillary region, and behind the mastoid process on each side. At first they were regarded as fatty tumours, but afterwards Mr. Baker thought them probably of a lymphadenomatous nature, for, first observed last summer, they had since gradually increased, but were now gradually disappearing.—The PRESIDENT had seen a somewhat similar case with Dr. Clarke, of Clapton, where a tumour of considerable size, of the consistency of hypertrophied cellular tissue, or of a fatty tumour, was developed below the occiput. The patient was then a well-nourished, healthy-looking man, but a year later he died from dyspnœa, evidently due to the pressure of some intra-thoracic growth on the air-passages. In that case the original tumour did not dwindle in size.—Dr. BARLOW suggested an analogy between the growths in Mr. Baker's case and the soft fatty tumours met with in the neck in cretinous children—growths which do occasionally disappear.

Dr. HOGGAN exhibited a series of microscopical preparations illustrative of the histology of Leprosy and Cancer, especially as regards the changes in the cells of glands. Last year he had shown that when cancer involves the lymphatics the chief cells to become cancerous were the wandering cells and the fixed endothelial elements, the latter being far less prone than the former to become altered, even if exposed for some time to direct contact with the cancer products. When cancer attacks the skin, the epithelial cells in the sweat-glands are very readily converted into cancer-cells, and his specimens showed this conversion in all stages, the cancerous cells being recognised by their large size. The flattened cells of the basement membrane do not become cancerous until a later period, and then finally all trace of gland structure is lost, and the cancerous mass undergoes degeneration. The medullary and scirrhous types of cancer were well shown in the specimens. In leprosy the changes undergone by the glands are the reverse of that in cancer, for there is a first stage of hypertrophy of cellular elements, followed by a second of atrophy. The specimens showed both these conditions; in the one the gland-cells were more numerous than normal, forming three or four layers, the largest cells undergoing vacuolation. These vacuolated cells eventually burst and discharge their contents into the lumen of the gland; and the second stage shows only the débris of cells enclosed within the contracted basement membranes, around which is a quantity of gelatinous tissue.

Mr. SPENCER WATSON showed a specimen of Melanotic Sarcoma of the Eyeball. The patient, a man fifty-eight years of age, came complaining of loss of vision in the right eye and pain of fifteen months' duration. Mr. Watson, finding evidence of intraocular growth, enucleated the eyeball. A black oval mass was found occupying two-thirds of the vitreous chamber, and a separate nodule occurred outside the sclerotic near the optic nerve, and one or two other black spots were also noticed outside the globe. The retina was detached by the growth, which was composed of oval and rounded cells full of pigment. Mr. Watson was in hopes that no secondary growths had occurred, and mentioned a case previously reported by him, where two years and a half have elapsed since the enucleation, and no recurrence or evidence of secondary infection had been seen.—Dr. DOUGLAS POWELL had now under his care a patient evidently suffering from melanosis of the lungs, who had had her eye removed for a melanotic growth some three or four years ago.—The PRESIDENT mentioned a case where he had excised the eyeball for melanotic sarcoma, but eight years after the patient died from malignant disease of the uterus, apparently not directly connected with the ocular disease.

LARDACEOUS DISEASE.

In inviting members to continue the debate upon lardaceous disease opened at the last meeting by Dr. Dickinson,

The PRESIDENT said that, whatever the outcome of the debate, the Society will approve of the Council's choice of the subject. It was ten years since the Society appointed a committee to inquire as to the nature of the peculiar produce, and the labours of that committee, and especially of Dr. Marcet, demonstrated that the material was not amyloid in nature. Since that time there had been comparatively little work done on the subject in that Society, and the object had in view in selecting it for debate was threefold—viz., to elicit new facts or communications attended with microscopical specimens or drawings, to invite statistical statements from the pathologists of hospitals, and to provoke criticism on the subject generally. Although nothing novel had yet come forward in the discussion, it had called forth statements from two leaders in pathology as to their present creed in the matter, as well as the statistics supplied by Dr. Turner. After referring to Dr. Dickinson's statement that the change was an infiltration dependent upon the loss of alkali from the blood, and also to his remarks that he had found it in new growths, and even in fibrinous deposits on the valves of the heart, Mr. Hutchinson said that the general result arrived at by Dr. Dickinson was to limit our conception of the causes of lardaceous disease to syphilis and suppuration. As regards suppuration, Mr. Hutchinson had ventured to hint at the close of last meeting that, with modern surgery (especially Listerism), and the facilities for sending strumous patients away, cases of prolonged suppuration were less numerous than formerly, and since that meeting he had been assured by many London surgeons that such was the case in their practice. As regards syphilis, the question arose whether, as producing lardaceous disease, it operated directly, or only indirectly, by being a frequent cause of profuse suppuration. Then, if it occur in syphilis, apart from suppuration, was it severe and general in its distribution, or limited to local new growths? From his own experience of syphilis, he had not met with lardaceous disease apart from profuse discharge, either in connexion with ulcers or bone disease. Still it was, *à priori*, quite probable that the change should occur limited to gummata; and he would suggest the separation between cases of general lardaceous change and

those where it is strictly local. Nothing had been said as to the retrograde changes of lardaceous deposits. Do they tend to increase indefinitely, or can they be absorbed wholly, or in part? How was the change best recognised during life? How long a time may elapse between the occurrence of the cause and the development of the lardaceous change? Was any explanation given for its prevalence in hot climates, and the curative influences of sea air? These were a few questions which might be answered; and, in conclusion, Mr. Hutchinson said that the only criticism which could be passed on the paper introducing the subject was that it was too brief; and if, in his reply, Dr. Dickinson were inclined to say more, he would be listened to with great pleasure.

Dr. GREENFIELD prefaced his remarks by exhibiting a drawing showing advanced lardaceous change in the liver, made sixty years ago, and labeled "lipoma of the liver." He had also brought some microscopical sections of waxy kidney and spleen, showing the effects of staining with methylaniline violet, a method introduced by Cornil. The lardaceous material takes on a reddish-violet tint, becoming red on the addition of acetic acid in glycerine, the unaltered tissues having a purplish tint. It was easier to express doubts than to solve them, and perhaps, in what he was going to say, he might be laying himself open to the charge of incompletely investigating the subject. He did not think the "iodine reaction" pathognomonic; it was yielded by colloid degeneration, and he thought the change in gummata and degenerated tumours more resembled colloid than lardaceous change, especially as methylaniline does *not* give the reaction to these growths. The staining of renal casts by iodine is looked on as important by those who hold the view of lardaceous disease being an infiltration, but similar casts are to be found in every form of kidney disease—e.g., in acute interstitial nephritis; and Cornil's observations show that the casts in lardaceous kidney do *not* give the lardaceous reaction with methylaniline, except in a few instances, when probably there is lardaceous degeneration of epithelium. There were one or two difficulties in the way of the infiltration hypothesis, a view for which Rindfleisch was responsible, and based upon the fact that the change especially affected the walls of the ultimate arterioles. But sometimes only a few of the muscle-cells in a vessel were picked out by the change, and the curious way in which it was distributed through the body, arbitrarily attacking some parts and never others (e.g., the bones and skin), hardly accorded with a view of an infiltration from the blood. It closely resembled other forms of degeneration both in reaction and distribution, and it might well be regarded as a degeneration tending to affect, as a rule, parts functionally active and near the termination of vessels. If it be an infiltration, where is it formed? At the wound? or in the blood generally and thence excreted? Would it not be simpler to attribute its occurrence to the action of impoverished blood (perhaps wanting in potash) upon the tissues? Dr. Greenfield had seen the change in a number of cases of syphilis, congenital and acquired, where there was no bone disease or suppuration. He had also met with it in a certain number of cases where there was bone disease, but no suppuration. Would the view of deficiency in potash meet these cases? Was it not more likely to depend on deficiency in leucocytes, which are formed out of the blood in such large numbers in suppuration, and in syphilis probably furnish material for new growths? Even if true waxy casts were formed in other kinds of renal disease they might be due to some gradual transformation of albuminoid bodies. He had taken this view for he wished to show that some one at any rate still believed in the "degenerative" nature of the change, and that this view should not be abandoned after so many years for that of "infiltration." Speaking of retrograde changes undergone by lardaceous material, he observed that he had found it undergo fatty degeneration and molecular disintegration, and even calcification; but at the same time it was remarkable for its persistence and durability.

Dr. PYE SMITH said that they were practically discussing facts and theories which were first broached by Dr. Dickinson in his paper at the Royal Medical and Chirurgical Society twelve years ago. No material additions had been made to the subject since that time. Was the alleged artificial lardaceous material produced by the action of hydrochloric acid on fibrin anything else than a form of acid albumen or syntonin? and, if so, it could not be the same as the true lardaceous substance. The action of potash in removing the iodine stain was no more than occurred from the chemical action of potash on iodine, quite irrespective of the substance which the latter may have stained. Although the iodine test was an extremely valuable method of pathological diagnosis, still there ought to be some hesitation before placing much reliance upon a mere colour test. He had found a great variety of shades of colour produced by the reaction of iodine upon various kinds of syntonin—shades ranging from pale yellow to mahogany brown. Dr. Dickinson believed the substance in question to be dealkalinised fibrin, basing this upon the connexion between suppuration and lardaceous disease. But in suppuration there was not only great waste of potash, but also a large waste of leucocytes, and also of phosphates, and he did not see why the deprivation of globulin and of phosphates should not be quite as likely to produce the change as the loss of potash. But could the view that this was changed fibrin be accepted? The original "amyloid" theory of Virchow need not be gone back to, for even at that time Kekulé's analysis showing plenty of nitrogen in the substance had been published. Since then, by Kühne's method of digestion, and the resistance of the substance to those methods, pure "lardacein" had been isolated in a state of approximate purity, and its chemical composition was known as well as those of other albuminoid substances in the body. This composition did not agree with the view of exuded fibrin; it cannot be considered as analogous to coagulated lymph, for whenever such exudation occurs (and it only occurs in inflammatory conditions), there is a tendency to new tissue formation. In lardaceous disease there were no parallel changes to those of known fibrinous exudations, and therefore he thought Rokitansky's original doctrine of the change, being a degeneration, and not an infiltration, was the more tenable—a view borne out by the fact that cells were found full of it, as in retrograde degeneration changes. This view of its nature carries with it many important practical conclusions.

Sir JOSEPH FAYRER had certainly seen lardaceous disease apart from suppuration—e.g., in tropical malarious disease. In the hill-diarrhœa of India the whole of the small intestine was generally the seat of this change; and he thought it could be recovered from, seeing how many who have severely suffered from this affection recover on coming to England.

Dr. GOODHART called attention to a paper giving full statistics on lardaceous disease published in the Society's Transactions for 1876 (p. 324), by Dr. Hilton Fagge, the figures being based on an examination, by Mr. Lancaster, of Guy's Hospital records for twenty-one years; out of 244 cases, 154 were associated with chronic suppuration and 76 with syphilis. Of the latter, "in about 34 there was evidence of former or present bone disease or suppuration, leaving about 42 in which the affection seemed attributable to the syphilis *per se*." The report does not state whether the change was local or general in its distribution in these cases; but Dr. Goodhart had once, out of 100 cases of syphilitic lardaceous disease, found that as a rule three or four organs were affected. In the paper quoted there was found reference to the length of time between the cause and effect in about six cases (see p. 355); one eight months, another seven months, and so on. Dr. Goodhart asked whether this might not be influenced by the amount of fever present with the suppuration. Fatty and calcareous retrograde changes are also referred to in the paper. As to the iodine test, speaking for himself, Dr. Goodhart could not rely on it in the less advanced cases, and he had even seen instances of advanced lardaceous disease which did not yield the reaction.

Dr. STEPHEN MACKENZIE said that, with regard to the influence of fever in producing this change, in some fevers—e.g., typhoid, scarlet fever pyæmia—he had found a hyaline degeneration of the interior of small arteries—a change first detected by Klein in the spleen and liver in typhoid. Dr. Mackenzie had also met with it in diabetes. The material gave no definite reaction with iodine; and although it may not be of the nature of lardaceous material, its occurrence may throw some light upon lardaceous degeneration, it evidently being associated with alterations in the blood.

Dr. DUCKWORTH cited two cases in illustration of the fact of lardaceous organs undergoing retrograde changes. In the one case under observation, for three years the liver and spleen, originally of great size, gradually diminished year by year; and the other was a case recorded by Grainger Stewart, which was under observation for seventeen or

eighteen years, when similar diminution of the enlargements took place.

The discussion was here adjourned.

MEDICAL SOCIETY OF LONDON.

Erythema Multiforme.—Vaso-motor and Trophic Neuroses.

AT the meeting on March 24th—the President, Dr. Cockle, in the chair—Mr. MALCOLM MORRIS read notes of a case of Erythema Multiforme in a child six years of age. He carefully observed the progress of the eruption, which he could divide into four stages—1. An erythematous stage, lasting about forty-eight hours. 2. A central vesicular stage, lasting about twenty-four hours. 3. The formation of a central scab and the appearance of a peripheral vesication. 4. Desquamation.—Dr. T. C. FOX said the disease was not a rare one; it was the herpes iris of Bateman, or hydroa vesiculare of Bazin. More common in adults than in children, it is very difficult to treat. It occurs in rheumatic subjects. Erythema rarely vesiculates.—Dr. de H. HALL asked for family history of gout or rheumatism in the case.—Drs. HADEN and FOTHERGILL spoke of gout as occasionally appearing in children.—Mr. MORRIS, in reply, said there was no history of gout in the case, which he did not consider was an instance of herpes iris.

Dr. DOWSE read a paper on Vaso-motor and Trophic Neurosis. Eulenberg and Guttmann had stated that although the vaso-motor centrum was for the most part in the medulla oblongata, they had shown certain districts in the cortex cerebri to be related to the vaso-motor system, just as Budge had shown the cerebral peduncle of one side to influence the vessels on the opposite half of the body. Then Goltz had clearly shown that there were two sets of vaso-motor nerves, one dilating and the other contracting the vessels. Trophic nerves were evidently distinct from the vascular nerves, and as yet their actual existence was only a matter of inference—e.g., in the occurrence of disorders of nutrition (bedsores, cystitis, &c.) in disease of the brain or spinal cord. Dr. Dowse then drew attention to the part taken by vaso-motor and trophic nerves in hemicrania, angina pectoris, facial hemi-atrophy, muscular atrophy, and pseudo-muscular hypertrophy.—Dr. COOK asked whether there was any connexion between nervous diseases and acute yellow atrophy of the liver.—Dr. FOTHERGILL said the existence of trophic nerves was necessary to explain cases of loss of nutrition following division of nerves, and he pointed to the fact that increased nerve force was followed by muscular overgrowth, as in the muscles of the blacksmith's arms, and in the left ventricle in mitral regurgitation.—Dr. DE H. HALL asked whether stomatitis following measles was due to nerve change; and he inquired what was the actual change that took place in the tissues of clubbed fingers.—Dr. T. C. FOX cited alopecia, pityriasis rubra, and scleroderma as examples of skin-disease depending on nerve-changes.—Dr. LEARED asked for an explanation of "glossy skin."—Dr. DOWSE replied.

PROVINCIAL MEDICAL SOCIETIES.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.—At the meeting on Jan. 22nd, 1879 (Dr. Henry Fripp, President), Dr. Fisher was elected a member of the Society.—Mr. ARTHUR W. PRICHARD exhibited a specimen of Atresia Vaginæ, with retention of menses. The patient, forty-three years of age, was admitted to the Bristol Royal Infirmary with a tumour in the lower part of abdomen. The atresia was divided, and the tumour tapped with an aspirator. The patient died from peritonitis, resulting from the rupture of a large sac within the pelvis, which was found to be an obstructed and dilated Fallopian tube.—Dr. Aust Lawrence, Dr. Skerritt, and Dr. Swayne made comments on the case.—Dr. AUST LAWRENCE showed a specimen of Ruptured Fallopian Tube and Uterus, with Chronic Endometritis. It was taken from a woman who died from peritonitis, owing to rupture of the right Fallopian tube. The patient was admitted to the General Hospital suffering from endometritis, and for this nitric acid was applied to the interior of the uterus. The woman did well for four days, when she developed symptoms of peritonitis, and died in three days. The left Fallopian tube was dilated into a cyst; the right tube was very much dilated and thickened, and had given way; the contents, escaping, set up peritonitis, the interior of the uterus presenting the usual appearances of granular endometritis. Dr. Lawrence did not attribute the fatal termination to the application of the acid. The immediate cause of the rupture of the tube was probably its over-distension by menstrual secretion, the portion which had become thin giving way under the pressure. The act of menstruation was coincident with the development of peritonitis.—Mr. Ewens made some remarks on the case.—Dr. J. E. SHAW exhibited a specimen of Scirrhus Cancer involving the Stomach. It had ulcerated completely through the coats of the organ, and involved the splenic flexure of the colon. A large cavity, shut off from the rest of peritoneum by adhesions, and containing gastric contents, existed between the spleen, stomach, diaphragm, spine, kidney, and abdominal wall. Towards the close of life there was continual stercoraceous vomiting. The patient was a female seventy years of age.—Mr. ARTHUR W. PRICHARD exhibited a specimen of Perforating Ulcer of the Stomach from a servant girl seventeen years of age, who had died from peritonitis after an illness of twelve hours. The peritoneal cavity was found to contain egg-and-brandy mixture, which had escaped by a small aperture in the anterior wall of the stomach close to the lower curvature.—Dr. Fripp, Dr. Swayne, Dr. Shaw, and Dr. Skerritt commented.

At the annual meeting of this Society, held Feb. 25th, 1879, Dr. H. Fripp, President, the following were elected members of the Society: Mr. Felix P. Bartlett, Mr. Joshua James. The officers of the Society for the ensuing year were elected, as follows: President, Mr. W. Michell Clarke; President elect, Dr. J. G. Swayne; Secretary, Dr. Shingleton Smith. Six members of committee elected annually: Dr. Davey, Mr. Dobson, Dr. Fyffe, Mr. Griffiths, Mr. Lansdown, Dr. Spencer.—Mr. JOHN EWENS exhibited a large Fibroma of the Uterus, removed by abdominal section. The mass removed weighed sixteen pounds and a half, and consisted of the whole of the uterus, in the posterior wall of which the tumour was developed. The mass was of nine years' growth. Remarks on the specimen were made by Dr. Fripp, Mr. Dobson, Dr. Lawrence, Dr. Swayne, Mr. Augustin Prichard, Mr. Michell Clarke, and Dr. Markham Skerritt.—Mr. F. P. LANSDOWN exhibited a specimen of Sarcoma of the Tonsil, with secondary growths in the right kidney and pancreas. They were removed from the body of a boy, five years of age, who had been delicate from birth. Tracheotomy was performed two days after the boy's admission to hospital. Dysphagia was so great that nutrient enemata were given, but, nevertheless, death took place in about five weeks from starvation. A section of the tumour showed it to be composed of small round cells with a limited amount of stroma.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—The seventh meeting of the session was held on January 24th.—Dr. McVAIL described a case in which there was a peculiar heart-murmur heard only at the apex, and following the second sound. A discussion ensued as to the probable pathology, but the matter was left in doubt.—At the same meeting Dr. A. D. STEWART read a paper on a more Accurate Method for the Registration of Acuteness of Hearing by Percentages. He pointed out that the defect of the ordinary method lay in the fact that every watch had its own distance at which it was audible by a normal ear, and that, therefore, the fraction expressing the hearing power did so only in terms referable to that watch. By a simple arithmetical calculation he proposed to express the results in absolute terms, which would be uniform whatever watch was used. This was done by reducing the results for any one watch to a standard watch, the standard, of course, being arbitrary.—Dr. Cassells objected to all watch-tests on the plea that the power to hear the tick of a watch was no criterion of the power to hear the human voice.—Dr. McVail, on the contrary, contended that the human voice could never be used as a test, being too complex, and its tones varying in different individuals. Other members joined in the discussion.

The eighth meeting was held on Feb. 7th. Professor MACLEOD remarked on Ice Accidents, confining his attention, however, to Pott's and Collis's fractures. In regard to the former he laid it down that it included fracture of the in-

ternal malleolus as a necessary element. This view was controverted by Dr. Hector Cameron, who pointed out that in the fracture figured and described by Pott in his works the internal malleolus was not broken. In regard to Collis's fracture, Dr. Macleod thought that in not above a fourth of his cases was there fracture of the styloid part of the ulna. As throwing some doubt on this calculation, Dr. Foulis pertinently called attention to the fact that in every one of the numerous specimens exhibited that evening this bone was fractured.

The ninth meeting was held on Feb. 28th. Dr. Charteris, Dr. R. Forrest, and Mr. W. Adam severally read communications on cases of Hæmatinuria. The discussion turned chiefly on the etiology and pathology. Dr. Gairdner thought that there were possibly cases of partial lesion of the kidneys, in which the blood was in some way imprisoned and decomposed in connexion with inflammatory exudations, and afterwards voided in the urine. Dr. M'Call Anderson insisted on there being a neurotic element in the predisposing cause. Dr. Joseph Coats was unable to conceive that the very large destruction of blood-corpuscles involved in this affection could take place in the kidney, and he pointed out that hæmatinuria was sometimes present in such blood diseases as pyæmia and in typhus, and could be artificially brought about by transfusion. Dr. M'Vail thought that the destruction could not occur in the general mass of the circulating fluid, as it was evidently brought about in response to some temporary nervous influence which could not affect the blood generally. Dr. Morton pointed out the analogy between this degeneration and that which occurred in scorbutus. Other members also joined in the discussion.

WOLVERHAMPTON DISTRICT MEDICAL SOCIETY. — A general meeting of this Society was held on January 7th, Dr. Millington in the chair.—Dr. TOTHERICK exhibited and made some remarks on a case of Athetosis, and also a curious case of Congenital Hypertrophy of the Thumb and Second Finger of the right hand.—Mr. VINCENT JACKSON showed a patient on whom he had performed a subcutaneous division of both tibiæ for excessive bow legs with a very successful result. A paper was also read by Mr. Vincent Jackson on "Gastrotomy in Intestinal Obstruction." He first related the history of a case in which he had lately operated, dividing a peritoneal band which bound down the intestine. The patient died twenty-four hours afterwards, and it was found (post mortem) that a considerable amount of fæcal matter had descended into the colon since the operation, showing the removal of the obstruction which was situated in the small intestine. Afterwards Mr. Jackson made some general remarks on the diagnosis of the causes of intestinal obstruction and on the operation of gastrotomy, and was followed by others. Numerous microscopical sections of cancer and sarcoma were exhibited after the meeting.

Reviews and Notices of Books.

The Bearings of Chronic Disease of the Heart upon Pregnancy, Parturition, and Childbed. By A. MACDONALD, M.A., M.D. London: J. and A. Churchill. 1878.

To those who have never had occasion to observe, or have never been led to reflect upon, the effects of cardiac mischief during the childbearing period, this work may appear somewhat supererogatory. But it will be found on investigation that childbearing normally exercises a very special influence upon the heart; that when the organ is damaged, the strain upon it is increased by pregnancy; and that ulcerative endocarditis, thrombosis, &c., during the puerperal state are grave and peculiar maladies.

Primâ facie, then, there are good grounds for the publication of a work wherein the relations between the condition of childbearing and affections of the heart are judiciously brought into juxtaposition—wherein the bearings of the one upon the other are set forth and duly emphasised and explained. It was in the hope that Dr. Macdonald had undertaken this useful task that we took up his work. We regret to find that he has dealt with the subject in only a fragmentary manner, and, useful though the present contribution may be, that it falls considerably short of what is needed. The author may possibly aver that he had not all the materials necessary for such an essay within his personal knowledge; but this is hardly a valid excuse, for not only may it be rejoined that publication might have been delayed until he had, but that it is seldom indeed a writer can give an exhaustive description of disease from his own observation or experience alone; and in the present instance the author is largely indebted to foreign sources for many of the facts upon which his essay is based. Dr. Macdonald shows abundantly that he possesses the industry and acquaintance with foreign literature requisite for the construction of such a work; and it is to be regretted that he did not postpone the publication of the present, until he could give to the profession a more complete treatise upon a subject of so much practical interest, and one respecting which, as he justly remarks, far too little is known in this country.

The work opens with a succinct account of the observations of Larcher and other French physicians upon the physiological hypertrophy undergone by the left ventricle during pregnancy, to which the author appends the statements of German writers thereon. In the main, he agrees with Larcher and the French school that the heart does undergo appreciable hypertrophy during pregnancy—a conclusion which few will care to controvert. We think the author fails adequately to expose the importance of this physiological condition, especially as an etiological factor in the production of subsequent heart disease.

The chief portion of the work consists mainly in an exposition of the effects of certain valvular lesions in thirty-one cases, nearly half being furnished by German writers, and of which particulars are given with more or less detail. They comprise examples of mitral stenosis and of mitral and aortic insufficiency. In the course of his exposition the author makes many useful reflections, the outcome of his observation and research; but, as already said, the work falls short by so much of what is really a desideratum as to leave a feeling of disappointment in the mind of the reader, who expects to find therein a connected epitome of the subject. We think the author runs the risk of tiring his readers by so fully discussing the theoretical and often contradictory speculations of German writers.

Dr. Macdonald, working with Dr. Mahomed's sphygmograph, confirms the observations of various workers, that the pulse of pregnant women is one of high tension, and that the tension, though somewhat diminished, is still high, even after delivery, when the pulse is slow.

The chief practical deductions which the author makes, are, that chronic heart disease ought to be looked upon as a grave contra-indication to marriage; that the induction of premature labour should seldom or never be recommended; that chloroform may generally be used with safety and advantage; and that forceps and turning should be resorted to in order to shorten labour.

We shall hope that when a second edition is required, Dr. Macdonald will fulfil the task he is so competent to undertake, and will give to the profession a full and connected account of the subject in all its bearings, comprising the physiology and pathology of the whole blood-vascular system. Such a work would be eminently valuable if judiciously done, for it would bring prominently into view the important relations existing between the peculiar blood-condition of pregnancy, the exalted tension of the vascular system, and the altered state of the heart's nutrition. The strain, when it arises, is so apt to fall unduly upon the lesser, or pulmonic circulation, that the subject must necessarily embrace the consideration of pulmonary affections. Such a work as we have indicated would be as valuable as it is undoubtedly needed.

Application des Sciences à la Médecine. Par le Dr. EDOUARD FOURNIÉ. pp. 731. Paris: A. Delahaye. 1878.

THIS work, by a physician who is well-known for his interesting investigations on deaf-mutism, and for his valuable observations on the mental attributes of animals as compared with man, or comparative psychology, is divided into two parts. The first is an historical account of the development of medicine, pursued biographically from the time of Hippocrates to the present time, and the second is a description of the application of physics, chemistry, and biology to medicine. In the first part the names, the knowledge, and the works of Hippocrates, Galen, Vesalius, Harvey, and Bichat, are brought into prominent relief, whilst many others are noticed. We think the author has sometimes failed to give to several of the leading spirits of past ages space commensurate with their merits, whilst others are discussed at too great a length. Hunter is dismissed in ten lines, whilst V. Helmont has a page accorded to him. There is a good account of the gradual development of the cell theory, and the author calls MM. Cornil and Ranvier, who have just published a work on histology, to task, for attributing to Schleiden and Schwann doctrines in regard to cells which were originally advanced by M. Dutrochet. He denies that the cell, as maintained by Virchow, fulfils or performs a function; this deplorable mistake, he says, is at the bottom of the false views now prevalent. The cell lives, but it does not act.

The second part of the work, occupied with the application of the physical and biological sciences to medicine, may be more briefly dismissed. The reader will find here mention made, with more or less description, of registering apparatuses, of dynamometers, thermometers, areometers, manometers, of the cardiograph and sphygmograph, of pneumatic apparatus for applying increased or diminished pressure of air for therapeutical purposes, aspirators, of various forms of apparatus for illuminating internal cavities, as the ophthalmoscope, otoscope, laryngoscope, endoscope, splanchnoscope, and specula, of the hæmatocytometer, and of the various apparatuses in use for the application of electricity.

The last sections of the work refer to the application of chemistry, botany, and zoology to medicine, and include an account of the improvements in general hygiene for which medicine is indebted to chemistry and the other branches of natural history, as by the analysis of air and water, the detection of adulteration in food, the determination of the constitution of the blood, lymph, urine, and other fluids, the practical deductions to be drawn therefrom, and the employment of new drugs obtained from the animal and vegetable kingdoms. This part of the work, which will prove valuable to all who wish to know what has been done during the last few years, is enriched by many excellent illustrations.

OUR LIBRARY TABLE.

Medical Chemistry, including Outlines of Organic and Physiological Chemistry. By C. GILBERT WHEELER, Professor of Chemistry, University of Chicago. Philadelphia: Lindsay and Blakiston. 1879.—The title of this book is misleading; it should have been "Organic chemistry considered in its relation to medicine." By stating that the work includes outlines of organic chemistry, the author implies that a considerable portion of the book is devoted to inorganic chemistry. This is not the case. From beginning to end it is nothing but a treatise on organic chemistry. A medical man purchasing this work under the idea that he would find useful hints with respect to such matters as water analysis, ready methods for detecting common forms of food adulteration, or an account of the chemical processes required in pharmaceutical operations and toxicology, would be grievously disappointed, and instead of such practical material would find at least one-third of the pages devoted to formula, bewildering, not to say useless, to the ordinary practitioner. Had the author given some such title as we have suggested, a mistake of this kind would have been unlikely to occur, and its character as a textbook of organic chemistry would have been clearly defined. Regarding the book, therefore, in this light, we think it may prove useful to the students of the University of Chicago and other American institutions, where, according to the author's preface, "medical chemistry has not yet secured sufficiently pronounced attention to create a demand for textbooks of considerable size or extended scope."

Renal and Urinary Diseases. By WILLIAM CARTER, M.B. Lond., M.R.C.P. Lond., Physician Liverpool Royal Southern Hospital. London: J. and A. Churchill. 1878.—An interesting collection of cases of renal disease, which will be found valuable for reference rather than for systematic perusal. It is a class of work which is extremely useful, as the record of practical observation always is, but, beyond the consciousness of having done honest work, bringing, we fear, but little recompense to the author.

Clinical Temperature Charts and Case. Arranged by Dr. HADDON. Manchester: Holdernesse and Co.—These useful little charts supply a want. They contain on one side diagrams showing pulse and temperature. Between the diagrams there is space to note the respiration, and at the foot room to record treatment, whilst at the back are ruled spaces to note previous history and progress of case. The morocco portfolio is of a most convenient size, and will hold a considerable number of charts.

The Plague as it Concerns England. From Official and other Sources. London: Hardwicke and Bogue. 1879.—This is a small octavo pamphlet of sixty pages, which explains very concisely and in a lucid style the "situation" at the present moment of the plague question as it affects England. The material is gleaned from official reports, the writings and evidence of Mr. Simon and Dr. Seaton, and papers by Mr. Netten Radcliffe. We recommend it to the attention of all who desire to know the exact state of sanitary law and practice on this important subject, and do not care to, or cannot, weed it out of Blue-books and other Parliamentary documents. It is one of the cheapest shillingsworths recently published.

Notes of Statutes affecting the Public Health Act, 1875, from 1875 to 1878 inclusive. By J. V. VESEY FITZGERALD, Esq., B.A., of the Inner Temple and Midland Circuit, Barrister-at-Law. 8vo, pp. 49. London: Longmans, Green, and Co. 1879.—This is a necessary and well-arranged supplement to Mr. Fitzgerald's edition of the Public Health Act, 1875.

Analytical Records.

LEGUMINOSE.

(HARTENSTEIN & CO., CHEMNITZ, SAXONY; AND BENEKE, 72, MARK-LANE.)

This preparation appears to consist of a mixture of leguminous and cereal flours. The proportion of flesh-formers in leguminous meals is too high for ordinary dietetic purposes, and the idea of preparing a mixture in which the non-nitrogenous constituents of food are incorporated in definite and calculable quantity, is, therefore, a sensible one. We understand that mixtures in various proportions can be obtained, so that the physician may give what he thinks the proper quantity of flesh-formers.

MORRIS'S PURE PALM SOAP; MADE IN LIBERIA, AFRICA.

(NEWBERY & SONS.)

This soap, made in Liberia from the fresh oil, possesses in a high degree the peculiar and indescribable fragrance of the nut. Palm oil prepared near the trees is very different from the crude product commonly imported, and the soap made from it is hard and dry, and first-rate in quality. We think it will be popular, and it is likely to be useful in mild skin affections.

PURE ESSENCE OF BEEF; ESSENCE OF MUTTON; ESSENCE OF CHICKEN.

(S. M. BURROUGHS & CO., 8, SNOW-HILL, E.C.)

These essences are prepared without concentration, and are to be used cold or lukewarm, without dilution. They are quite clear, and so excellent in flavour that they cannot be distinguished from freshly prepared home-made extracts; in fact, very few cooks could prepare any meat essence half so good. For the sick room they are invaluable.

WYETH'S COMPRESSED PEPTONIC TABLETS.

(S. M. BURROUGHS & CO.)

Another addition to the already long list of Messrs. Wyeth's preparations. It contains pepsin, pancreatin, and lactates in a very convenient form, and may very safely be recommended.

SAWERS'S PITYRONARTOS BISCUITS AND GLUTEN BREAD.

(THOMAS SAWERS, JUN., LAWNMARKET, EDINBURGH.)

Intended for use in diabetes and cases of imperfect digestion. The bread is as light as feathers, and singularly flaky, and both it and the biscuits are prepared with judgment and skill.

LOEFLUND'S EXTRACT OF MALT.

A well-prepared and quite satisfactory malt-extract. We have received several samples, some of them plain and some combined with cod-liver oil, hypophosphite of lime, and pyrophosphate of iron. Probably no better medium for the administration of the drug could be found.

KEPLER'S CONCENTRATED MALT EXTRACT.

(THE KEPLER MALT EXTRACT COMPANY, LIMITED, 8, SNOW-HILL, HOLBORN VIADUCT, E.C.)

So many malt extracts appear nowadays that it is difficult to praise one without some risk of unfairness to others. We can only say of the preparation now before us that it is very good, and can be used with confidence. The mixture with cod-liver oil has wonderfully little of the disagreeable taste of the oil. Many could take it easily who cannot take the oil.

SOUTHALL'S SOLUBLE MEAT.

(SOUTHALL BROTHERS, & BARCLAY, BIRMINGHAM.)

A condensed meat-extract containing albuminoids, as well as the ordinary extractives of flesh. It is, of course, a true flesh-forming food, as well as a powerful stimulant. There is room for improvement in point of flavour; but the real value of the preparation will be admitted by all.

MR. PARKER'S LECTURES AT THE COLLEGE OF SURGEONS.

IN Professor Parker's third lecture the morphology of the fish was continued, and especial reference was made to the calcareous investment of the sharks and skates (shagreen), and compared it with those superficial endostoses that occur in amphibia. It was shown that frogs and toads vary considerably in the amount of ossification; they present a very extensively hardened skull, being referable to one of the older or more generalised type; the form of ossification being often irregular. The absence of the amnion and allantois in the amphibia was noted, and the subdivisions of the group were given as cœcilia, the urodeles or salamanders, the anura or tailless types like the frog and toad, and the labyrinthodonts or extinct amphibia of the Coal Measures. No evidence has been obtained to show that these have a common ancestor, though they may have sprung from a common stem. The peculiarities of the group were then given. Their commencing life as fishes with gills, and their subsequent metamorphosis, and the relations of the larvæ to fishes were discussed. If the larva were the perfect creature, the tadpole of the frog would have to be placed below the lamprey, and the tadpole of dactylethra between the lamprey and the pterichthys of the Old Red Sandstone. The Professor was of opinion that it is safe to draw the conclusion that the larvæ of the lower forms of amphibia resemble the adult forms of lower and more ancient types. The gills of the modelous were compared with those of anurous larvæ, and the former were stated to have only three sets of external gills on each side, growing from true internal branchial arches like those of the skate. In the anurous larvæ there are at first two sets of tufted gills growing from the two anterior branchial arches. These are soon concealed by an operculum growing from the tongue. The primary pharyngeal wall splits and forms a series of four pouches partly invested by cartilage on each side. Tufted vascular growths form within the pouches, and others externally on the branchial clefts. The tadpole of dactylethra has no external gills, and that of the Surinam toad only rudiments in the earliest period of development. Neither in the proteus, which is the lowest, nor in the newt, which is the highest, is there any trace of a gill on the first or second or on the sixth post-oral arch. The lamprey presents no external gills at any time, which points to a certain amount of degeneracy in that animal and its congeners the hag and the bdellostoma; and the Professor suggested, as worthy of consideration, whether it were not possible that these creatures might have risen from a very low plane of organisation to their present status by some by-path. Yet they present some points of advancing development in their rudimentary middle ear and larynx and their limb girdles. The amphibia of modern times, with the exception of the gigantic salamander of Japan, have for the most part diminished in size from their ancestors; but the type of their development is higher, and they look upwards towards the scaly reptiles.

In the fourth lecture Professor Parker pointed out that care must be taken in applying names to parts in the early stages of development, since a single bone in the embryo often represented two or more bones in the adult. A good example of this was the pterygo-palatine bone of the urodeles, which, in process of development, divides into a larger pterygoid portion which has no teeth, and a smaller ethmo-palatine which has teeth, and in some instances segments still further. The remarkable differences presented by different species of amphibia were dwelt upon, the contrast between several species of tongueless toads being greater than that between any two types of birds. This he considered to be in part due to the sensitiveness of their organisation to external influences and to the variety of conditions of life under which it is possible for them to live, and under which they have lived. He suggested that the larval condition of the present amphibia represents the permanent condition of certain amphibia of the pliocene and miocene periods. The batrachia, though presenting affinities with higher and lower animals, do not lead directly to any existing group of high vertebrates.

The fifth lecture was devoted to the Morphology of the Reptiles, and the serpents were first considered, and Mr. Parker stated his opinion that they were not descendants of worm-like ancestors, but that they were a degenerated type of vertebrates in which the legs from disuse had ceased to be developed. Their skeletons present few exoskeletal parts. In the head, however, the investing bone formed by the ossification of subcutaneous tracts constitutes a large proportion of the skull. The extreme hardness, density, and coalescence of the bones of the skull were dwelt upon, and the maxillary apparatus carefully described. At the close of the lecture the Professor descanted on the vertebral joints, and the perfection of the mechanism of the spine.

THE LANCET.

LONDON: SATURDAY, APRIL 12, 1879.

HE must be a sanguine man who ventures to believe that the current session will see any Medical Bill passed. We have now come to Easter. The Government Bill, it is true, has passed through the House of Lords, and, what is more, has been considerably improved in its passage, especially by the amendment of Lord EMLY, making the Medical Council responsible for the framing of medical rules. That body will, under such a clause, be really responsible for bad rules and bad curricula, and it will no longer be possible for it to blame the individual examining authorities for inequalities in the degrees of medical knowledge. Hitherto—or rather before the deluge of the dentists—it enjoyed a luxurious and leisurely sort of existence, and got rid of all troublesome details of duty. One body might require three courses of anatomy, and another one, for the same kind of licence to practise. That mattered not to the Medical Council, who come together in the height of the London season to discuss matters rather of medical politics than of medical education, and to refer all delicate questions for the opinion of the various educational and licensing bodies. Henceforth, under such a clause as Lord EMLY'S, this easy system of reference will cease, and the Council must realise that it is the Council of Medical Education that will have praise if medical education is improved, and must take blame if it continues, as at present, inadequate to preparing men for the minimum examinations. Let us devoutly hope that there will be no more tampering with this vital principle, which was really in the Lord President's Bill of last year, but in an evil moment he allowed to be squeezed out of it by the pressure of the Medical Council, which shirks responsibility and likes to spare the functions and the feelings of the individual corporations of which it is composed. The Lord President might, in the matter of this clause alone, see how bad an adviser of the Government the Medical Council is. There was no better clause in the original Bill, and none which an earnest Council should have more eagerly welcomed. Instead of this, they objected to it, and at their instigation, as we have said, unfortunately the noble Duke altered it so as to relieve the Council of the obvious duty of initiating rules.

But, whatever the improvement in the Bill, it is yet so incomplete, and confronted with so much and such serious opposition, that, for ourselves, we have almost given up the hope of legislation this year. There are no less than three other rival Bills in the House of Commons—namely, that of Dr. LUSH, that of Mr. ARTHUR MILLS, and that of Mr. ERRINGTON. Dr. LUSH'S Bill provides a smaller Council, and has the merit of attempting—very inadequately, we must admit—to reduce the individual representation of the bodies in it. Besides this, it provides for a certain number of direct representatives of the profession. Mr. ARTHUR MILLS'S Bill is the Bill of the British Medical Association. It follows the line of the Government Bill, but differs from it in altering the Council by the simple addition of six direct representatives. This is rather to enlarge the Council than to reform it. This Bill fastens on the General Medical Council the responsibility of framing examination-rules, which the Government measure also does. Mr. ERRINGTON has done admirable service in contributing to the discussion of medical reform this session; but his Bill seems to us entirely out of the question. It leaves all existing examinations as they are, and requires candidates for civil medical appointments to pass a special examination, like that of the candidates for the army and navy. In other words, it would add another examination to the existing ones. This new burden must be resisted. In the name of reason, men entering the profession now have examinations enough. They have too many. If the examinations are not efficient, let them be made so. If the existing bodies cannot be made efficient, or if their pecuniary interests give a character of suspiciousness to their examinations, by all means let a new examination be instituted to supersede the existing ones. But let not the hapless student be required to pass one examination for the mere sake of upholding the corporations, and then another for the satisfaction of the State. There are too many corporations. This is the time for relieving from further duties a few of those which have served their generation. It would be gracious in them to recognise this, and to facilitate the formation of a single portal. But it would be simply intolerable to require, as Mr. ERRINGTON'S Bill does, that men should have to pass two examinations, as at present—a medical and a surgical,—and yet have to pass another before they could attend a pauper patient! But the three rival Medical Bills are not the only obstacles to the Government Bill. The Government gave Dr. LUSH an undertaking that the Bill should not be proceeded with until the report of a Select Committee on the Constitution of the Council was before the House of Commons, which they propose to nominate. To this proposal there are no less than four amendments, by Mr. ERRINGTON, Dr. O'LEARY, Dr. CAMERON, and Dr. LYON PLAYFAIR, respectively. This opposition blocks the way of the Government Bill; and it almost looks as if the Government had given up the hope, if not the wish, to pass their Bill this session. Lord GEORGE HAMILTON'S motion for the appointment of a committee has never been put down for an early hour on a Government evening, as it might have been; and on one occasion, when it might have been brought on before half-past twelve, it was not. We are disposed to hope that the Government sees that the question is a larger and more complicated one than it was led to think by the representations of the Medical Council, and that it will yield to the general wish to send all the Bills, without delay, to a select committee, so that next year a complete measure may be passed. That another year should pass without legislation is a pity. But it is not such an evil as if an imperfect Bill were to pass without touching the constitution of the Medical Council, and dealing thoroughly with the deeper questions which are involved in the creation of an examining board above all suspicion in each part of the kingdom. For delay in legislation we have to at once blame the Medical Council and thank the medical reformers in the House of Commons.

THE influence of the presence in the pleura of air or liquid upon respiration has been studied in an interesting series of experiments by Professors WEIL and THOMA, which they relate in the current number of VIRCHOW'S *Archiv*. The special object of the experiments was to study the mechanical influence of these conditions on the respiratory process, with reference especially to the conditions which obtain in similar morbid states in the human subject. The points attended to were, the effect on the frequency and depth of respiration, and the effect on the inspired air. For the production of the conditions of hydrothorax injections of cocoa-butter were employed, which has the advantage that it remains fluid at the temperature of the body, and sets after death. It was found that the quantity of air inspired per minute increased if the injection was of moderate volume, but was diminished if the volume of the injection was very large. The point at which diminution commences was found to vary in different animals, even when the relation of the weight of the injected fluid to the whole body-weight was taken as the standard. As a rule, however, injections which were of less than 1-150th of the body-weight caused an increase, but those of a greater proportion caused a diminution in the volume of air breathed per minute. With large injections the amount of diminution amounted to from 5 to 71 per cent. It corresponded in degree to the quantity of the injected fluid. The alterations in the frequency and depth of breathing were less constant than the changes in the volume of air breathed. Increase in the latter was observed in some cases to coincide with an increase in both frequency and depth; in others with an increase in the frequency and unchanged or diminished depth of breathing; in others, again, with an increase in the depth of respiration and uniform or diminished frequency. Diminution in the volume of air breathed was due either to a diminution in frequency and depth of respiration, or to diminished frequency with increased depth, or diminished depth with increased frequency. Most frequently, then, the increase of the volume per minute with small injections, and the diminished volume with large injections, corresponded respectively with an increase in the number or a diminution in the depth of the respirations.

The absolute quantity of the carbonic acid exhaled was diminished by large injections in approximate correspondence to the diminution of air breathed per minute. In small and moderate injections, on the other hand, it presented no considerable diminution, and in some cases even a slight increase. The percentage of the carbonic acid in the expired air showed no deviation from the normal. These results corresponded with those which had been obtained by GUTTMANN in his experiments on the injection of mucilage into the pleural cavity of rabbits. Certain discrepancies may be explained by differences in the mode in which the observations were made.

The increase of the volume of air breathed in the case of slight injections furnishes new evidence of the capability of the organism to compensate for morbid states by increased exertion in the apparatus concerned. On the one hand, the lung must have undergone a certain amount of retraction, compensated for by increased action of the respiratory muscles, no doubt conditioned by the action of the respiratory centre by excessive stimulation of the vagus. This increased action proved, however, insufficient to compensate for the interference produced by large effusions. By them not only is the lung greatly compressed, but the thorax is maintained in a condition of inspiration, only to be overcome in a slight degree by the most energetic action of the respiratory muscles. The diminished excretion of carbonic acid was evidently related to this interference. To ascertain whether there is actually a diminished formation of carbonic acid fresh experiments are necessary.

Another interesting series of similar experiments were made to ascertain the effect on the respiration of pneumothorax, both with the cavity of the pleura closed and with an opening communicating with the external air. Closed pneumothorax caused an increase of every condition observed in the above experiments. The volume of air breathed increased in almost all cases from 3 to 29 per cent., the average increase being 14 per cent. The frequency of respiration increased from 6 to 72 per cent., the average increase being 24 per cent. The depth of respiration also in most cases was increased from 9 to 24 per cent., the average being 10 per cent. Only when the respiratory movements were excessively frequent was their depth lessened. The excretion of carbonic acid, however, was increased in three cases from 17 to 23 per cent., and in one case it was diminished. In the latter case the percentage of the carbonic acid in the expired air was diminished, in the other case it was increased. When an opening to the external air was maintained, however, the results were very different. All the elements in respiration exhibited a diminution, often very considerable. It is not difficult to understand the mechanism of this diminution in the air breathed and carbonic acid expired, since the effect of the respiratory movements in the lungs is, as is well known, greatly lessened in this condition. All the experiments were made on rabbits, and great care was taken to eliminate as far as possible the uncertainties arising from the great variation presented by the respiratory process in these animals under normal conditions.

WHATEVER may be thought of the policy of the Cabinet and the conduct of the Legislature in relation to medical affairs, in so far as they concern the community, and however good reason may be discovered to regard the inaction of the Government in matters of reform affecting the profession, as a not unmixed evil, it is impossible not to perceive that nothing really great, or permanently satisfactory, can be expected from any administration or any Parliament until the relations between Political Economy and Medicine are more clearly defined, and the applied science of Health is recognised as an integral part of State policy.

As a means of establishing a *modus vivendi* between the preachers of health and the rulers of the people, the institution of a great Sanitary Department, and the appointment of a Minister of Health, who shall be a *political* power and authority, and a member of the Cabinet, are, we believe, ultimate necessities. Meanwhile there can be no question as to the existence of room for great improvement in procedure on the present imperfect lines of policy. The recognition bestowed on Medicine as a service, and as a function, is inadequate, even according to the existing standards of comparative value. Health does not enter largely into the consideration of

the Government, or form a prominent subject of deliberation, when the policy of a Cabinet is in process of development. Whether a particular region is in a fit sanitary state to be made "a place of arms" or field of enterprise; whether a special line of procedure is likely to conduce to the public health; whether certain precautions might not be suggested to minimise, or perhaps avoid, disease, if the political heads of departments could bring themselves to take counsel with their medical advisers, are not questions wherewith "statesmen" are wont to trouble themselves, although nothing is more obvious than that health lies at the basis of prosperity, and a line of enterprise must always be unsatisfactory, if it does not actually end in disappointment, which pays no regard to the elements of vital economy, or fails to give due weight to the considerations which these suggest and their treatment implies.

It seems strange that these plain facts are not understood and appreciated at a period of history wherein the operation of contributory economic forces is fairly well appreciated. Perhaps one reason of the neglect with which even broad principles of physical health are treated may be discovered in the growing tendency to lay greater stress on qualities of the mind than of the body. This tendency is showing itself in a very marked degree in every branch of competitive progress and policy. What is facetiously called "intellect"—albeit it is often mere automatic brain-work; for example, memory—is rated at a higher figure in the public market, even for purposes which might be accounted physical, such as fighting and exploring, than great muscular capability of exertion, a large reserve stock of energy, and the trained agility and skill necessary to render these coarser qualities available. We are not now discussing the expediency of particular modes of training for special work, but simply pointing out the significant pre-eminence given to mental over physical training and qualifications in the preparation and selection of agents for public work. The consequences of this, as we believe, mistaken policy would be less serious than they now are, if it were more generally recognised that vigorous brain-power cannot be permanent unless it be supported by a high state of physical efficiency—in a word *health*. The intellectuality found in association with disease, and which may reach a high development among a nation of valetudinarians, is neither vigorous nor lasting. Certain weeds may be cultivated until they come to assume the forms, and even to affect the dainty colouring of flowering plants, but the beauty is evanescent and the prodigy is seldom reproductive. Applying this principle of development to the culture of a race or people, we affirm that it is not a progressive, but a retrogressive and essentially unsound, policy to stimulate the brains of a generation by education and competitive examination, without at the same time bestowing the most sedulous attention on the public health. He is not a wise or farsighted statesman who mistakes energy for stamina, or a bustling activity for enduring strength. The history of over-cultivated nations, which have sunk rapidly into decay, might well warn a Government that parades *Sanitas sanitatum, omnia est sanitas*, as its maxim, to set higher value on the science of health.

Practically it comes to this. The proofs of a waning, instead of an increasing, care for the public health have been many and depressing since Parliament reassembled. There has been a short-sighted repetition of the old blundering in relation to matters of health and disease-prevention, the familiar confusion, and worse confounding, of varieties of administrative authority with that shuffling of obligations and general neglect of duty which always, and in everything, results from a lack of clear and definite lines of policy. It is disappointing to notice these defects and deficiencies in the motive and conduct of public affairs, and the fact that they increase and multiply rather than diminish in importance and number, is dispiriting. We embrace the opportunity afforded by a recess in the session to appeal once more to the *amour propre* and intelligence of a Government which has surpassed its predecessors in the richness and abundance of its promises, while it has in no way outshone them in wit or excelled them in energy, by its own accomplishments. The longest lane has its turning, and the point at which the Government of the day must appeal to the country for a new lease of power cannot be far distant, if, indeed, it is not really nearer than many shrewd observers conjecture.

IN again calling attention to the marked disparity between the rates of mortality prevailing among the metropolitan imbeciles in the Caterham and Leavesden Asylums, we recently expressed regret at the want of uniformity in the form and dates of the vital and mortal statistics issued from those two institutions. Dr. ADAM, the medical superintendent at Caterham, in a letter published in these columns in our issue of March 29th, makes a valuable contribution to the materials available for considering the causes of the difference between the mortality in the two institutions. One or two points in Dr. ADAM'S letter appear, however, to call for comment. It is stated that the Caterham Asylum now possesses infirmary accommodation to the extent of 670 beds, and that "there is still urgent necessity for more." At Leavesden, on the other hand, the infirmaries contain only 342 beds, which are admitted, however, to be "always full to overflowing." Dr. ADAM urges these facts as "striking evidence that the character of cases received at Leavesden has been of a very different kind from that received at Caterham." We are not so sure, however, that this is the only or the correct explanation of this different proportion of infirmary cases. Nothing but careful and independent inspection could determine whether any, and what, portion of this difference may be due to the classification of infirmary cases. Moreover, the greater number of infirmary cases at Caterham, whether taken as an explanation of the high death-rate, or as the natural consequence of the conditions that also cause the high death-rate, must indicate the lower health condition of the inmates. The main point of interest is, whether this excess of the sickness and mortality rate at Caterham is due to the condition of the inmates on admission or to physical deterioration after admission arising from difference of treatment, inherent defects of the building, or of the locality or climate. One point bearing upon the assertion that Caterham has received a worse class of cases should not be lost sight of. During the first three entire years of the existence of these two institutions the rates of mortality at Leavesden and Caterham differed but slightly;

the excess of mortality at Caterham has, however, rapidly increased in recent years, until in 1877, in equal numbers resident, there were 165 deaths at Caterham to 100 at Leavesden, and, in 1878, 157 to 100. As regards the element of the ages of the inmates, it is to be regretted that neither the Caterham nor Leavesden reports for 1878 show the ages of the residents in groups of ages, which alone would afford the means for a scientific comparison of the death-rates. With the aid of but imperfect data as to the ages of the Caterham residents, we calculated that age difference would not account for more than 3 per cent. (that is, about a thirty-third part) of the excess of mortality at Caterham. Dr. ADAM, however, in his letter, appears to have understood that, on account of different age-distribution alone the normal death-rate at Caterham would be at least 3 per cent. (equal to 30 per 1000) higher than at Leavesden. This is certainly not the conclusion at which we arrived. We most cordially endorse Dr. ADAM'S estimate of the advantage that would be derived from more accurate knowledge of the actual bodily state and health condition of the patients in the two asylums, and from "comparisons of the amount and character of diet, extra diet, stimulants, and medical necessaries" used in each institution. The heating and ventilation of the two buildings should also be critically compared. There are many other points bearing upon organisation, management, and general and special treatment, other than medical, in the two institutions, which call for comparison. Justice to Dr. ADAM, apart from the public importance of the question at issue, appears to call for a strict, independent, and thoroughly impartial investigation of this matter on the part of the Managers of the Metropolitan Asylums District.

Annotations.

"Ne quid nimis."

THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

THE long-expected debate arising out of the report of the Committee appointed to inquire into the relations between Membranous Croup and Diphtheria was opened on Tuesday last at the meeting of the Royal Medical and Chirurgical Society. Deferring a detailed report until next week, it may suffice here to indicate the chief lines pursued in the debate, which so far has not been marked by much vigour. Possibly the Fellows assembled felt that the task of discussing a subject already thoroughly gone into in the exhaustive report before them was too much to undertake; and were it not that the report itself seemed to admit of differences of opinion as to the precise views held by the committee, it can hardly be seen what room there would have been for debate. The President, Mr. Erichsen, in inviting discussion, wisely pointed out the necessity of speakers confining themselves to the lines laid down in the report, in order to avoid confusion of terms and discursiveness in comments. For a time it even seemed as if no discussion would take place, so prolonged was the period of silence following the President's remarks, especially as the gentleman who, when the report was read, had moved the adjournment of the discussion, was not himself present to reopen the subject. At length Mr. R. W. Parker, after apologising for venturing to open the debate, proceeded to criticise somewhat closely the indefinite manner in which the committee had answered the very definite query laid down as the object and scope of the inquiry—viz., "whether there is such a disease as 'idiopathic membranous croup'—i. e., whether membranous laryngitis exists independently of the diphtheritic poison." He expressed himself as unable, from the report or its summary of conclusions, to gather what views the committee held upon this "crucial point." Subsequently Mr. Holmes took direct exception to this charge, pointing out that no sentence could be more clearly expressed in favour of the non-identity of "idiopathic membranous croup" and diphtheria than the following, which occurs in the closing paragraphs of the report:—"Croup may be membranous or not membranous, due to diphtheria or not so," the term "croup" being used "wholly as a clinical definition implying laryngeal obstruction, occurring with febrile symptoms in children." In spite of this it must be conceded that the sentence alluded to is capable of interpretation in at least two ways. Dr. Bowles, of Folkestone, who followed the first speaker, differed totally from him in his inferences, and thought it wise of the committee to have left the question open, so that scope might be given for further investigation. Dr. Wilson Fox, although personally expressing his opinion that in no case of membranous laryngitis had he been able to exclude zymotic influence (not necessarily the specific disease diphtheria), yet argued, from the analogy of the occurrence of cases of chronic primary croupous bronchitis, and from the effects of irritants on the respiratory tract, that there was no *à priori* ground for doubting the occurrence of an idiopathic membranous inflammation of the larynx or the trachea. Dr. John McIntyre, of Odiham, and Dr. A. E. Sansom strongly upheld the view as to the occurrence of croupous laryngitis apart from exposure to the poison of diphtheria, the latter gentleman pointing out that other zymotic influences than diphtheria might give rise to this form of inflammation. He also instanced several cases of non-membranous laryngitis in children, attended with croupal symptoms, and ending fatally. At this point the debate was adjourned on the motion of Mr. Hutchinson, seconded by Dr. Johnson, who stated his intention of taking part in the debate at the next meeting. We trust the question, now that it has been raised, will be thoroughly discussed in all its bearings. There must be many who hold the view, now rapidly gaining ground, which affirms that membranous laryngitis is never "idiopathic," but is dependent upon a specific zymotic poison, and it is not a little surprising, and to some extent disappointing, that of those who spoke the other night only one took up this position. We will not anticipate the discussion of this subject, but reserve further comment until the debate (which may possibly last longer than anticipated) is completed.

SANITARY NEGLECT IN HOLBORN.

OUR commissioner reports that during recent investigations in the Holborn district he has had occasion to note several cases of gross sanitary neglect. Not only were the houses abominably dirty; but, in some instances, the presence of fever called for prompt and effective action on the part of the authorities. In Queen's Head-court, Gray's-inn-road, for example, there are two old houses; in one of them a woman is now ill with enteric fever, and her daughter caught the same disease a short time ago while living in the other house. Further, a man who lodged with three other men in the same room was recently removed to King's College Hospital, where he died within twenty-four hours. A post-mortem was not allowed; but Dr. F. Robinson, the parish officer, who attended these three cases, is of opinion that the man was suffering from enteric fever. Under such circumstances energetic measures ought to have been taken to improve the sanitary condition of these

two houses, and to discover and remove the cause of fever. In answer to inquiries, however, our commissioner could only elicit a statement to the effect that a man, who has since died, did burn a little sulphur in one of the rooms; a measure of precaution obviously inadequate. Nothing has been done to improve the water-supply and the drains, which are the most probable cause of the evil. Like hundreds of other houses in the district, the closets, water-butts or tanks, and the dust-bins are all side by side.

No means are provided to flush the closets, nor have the drains been examined or disinfected. Complaints were also, it is stated, addressed to the authorities concerning a house in Princes-street, but nothing has been done. Here the drains are now, and have often been, completely blocked. There is no means of flushing, and no plug. The filth overflows the closet-seat, runs on the pavement in front of the door, sinks through between the stones, and drops into a washhouse in the basement below. Immediately above this revolting quagmire, facing the closet-door, and within a distance of but a yard, is the only window of a bed-room. This, of course, cannot be opened, in consequence of the horrible stench it would admit. The house is altogether filthily dirty, the drain-pipes have been leaking several times, and, though roughly patched, are evidently insecure. There is also overcrowding, inasmuch as a family of ten persons live in the two rooms of the second floor. These most apparent defects could be easily remedied without any great outlay. The health of a district like Holborn is a matter of the utmost importance to the whole metropolis. From such a centre the germs of an epidemic would rapidly radiate.

PHILLIPS v. THE SOUTH-WESTERN RAILWAY COMPANY.

THIS case, which came on for trial on the 4th instant in the Queen's Bench division of the High Court of Justice, presented points of singular interest to the medical profession. Dr. Charles Phillips, the lecturer on Materia Medica at the Westminster Hospital, and well known as one of the most successful practitioners at the west-end of London, was travelling from Sunningdale to Waterloo on the 8th of December, 1877, when the train in which he was sitting came into collision with an engine standing on the up-line between Wandsworth and Nine Elms. Dr. Phillips had two ribs broken, and sustained a severe shock to the nervous system, from which he is not likely to recover, and which has rendered him totally unfit to practise his profession. These facts were conclusively proved by the evidence of Mr. Erichsen, Mr. Heath, and Dr. Ringer; and, for once, there was no discrepancy in the medical opinions, the defendants admitting the state of the plaintiff to be as alleged. Neither was the fact that the accident was due to the negligence of the servants of the company in any way disputed; it was, in short, admitted on all hands that a medical man had been professionally ruined by the negligence of a railway company, and the only point for the jury to decide was the amount of damages which the former should receive from the latter.

It was proved in court, on the sworn evidence of the public accountant who had examined Dr. Phillips's books, that his average professional income for three years preceding the accident had been £6700, exclusive of extraordinary fees, which had amounted to a considerable additional sum; and the jury had a right to assume that the professional income would have remained at this figure for at least thirteen years longer—that is, until the plaintiff reached the age of sixty.

The expectation of active professional life was thirteen years, and to insure an income equal to that lost by the negligence of the company, for the term of thirteen years, a sum of about £67,000 would be necessary. Instead of this, however, the jury awarded the sum of £7000, and it is interesting to note the arguments used by the counsel and judge to prevent the jury from awarding absolute compensation. One argument, and one which had great weight, was the fact that the plaintiff possessed considerable private property, and although the learned judge directed the jury to put this out of consideration altogether, it was clearly impossible for them to do so. Mr. Justice Brett was quoted to the effect that juries were not to attempt to give a perfect compensation, and Mr. Justice Fry reiterated this instruction, but at the same time said that the calculations of the jury were to be based "on the fairest estimate of what the length of the plaintiff's life would have been, and what his earnings would have been under ordinary circumstances." It is difficult to understand that the jury followed these instructions in the slightest degree, for it was proved with tolerable clearness that in the sixteen months intervening between the accident and the trial the plaintiff had suffered a loss of nearly £9000 of professional income, and the jury awarded a sum less than this by £2000! We perfectly agree that if juries were to award absolute and perfect compensation railway shareholders would be ruined; but in this instance the compensation appears to us to have been singularly inadequate. The assessment of damages in these cases is based upon no principles of any kind, and some legislation on the point is urgently needed. We almost think that passengers might be classed with goods; and the amount of damages limited, except in cases where an exceptional value was declared and paid for beforehand by an extra tariff.

ALONE IN THE CROWD.

IT is one of the seeming marvels of civilised life that as the population becomes more concentrated its individual members are increasingly isolated. They live alone in the crowd in close proximity with men and women, for the most part, of their rank in life and companionship, but unless union is specially formed by personal friendships, the social state creates no bond of amity, or even a ground of intimacy. The sparse population of a hamlet may be personally acquainted, but in the densely packed community of a large city like London the intimacy of individuals, living together as neighbours, or even under the same "roof," is by no means a natural consequence of locality. A recent deplorable event would seem to point the moral of a fact which must have impressed every reflective mind. Thousands of the people of London live isolated lives, with neither strong friendships nor warm sympathies to cheer and sustain them; and those who occupy this strange position are by no means exclusively the poor or persons in straitened circumstances. Except for his daily appearance at the club, or in certain familiar haunts of men, many a "well-known character about town" is practically a stranger to everybody. Where or how he lives in private no one knows or cares. If he failed to put in an appearance at expected times and places the fact might occasion a passing remark, but no one would bestow a second thought on his absence, or if he were so seriously missed as to be inquired for, the search would begin long after the loss of any possible clue. It is a startling consideration that such is our social condition in these enlightened and progressive times that the elements of the community do not enter into effective combination with those around them. It is more emphatically true than ever it was that "the heart knoweth its own bitterness and a stranger intermeddleth not with his joys." The inner life of a vast portion of the congregation of mankind is wholly impenetrable. The outer-court of many an individuality is known only to one person besides

the man himself, and that is his medical adviser. The moral of this consideration should clearly be that the cultivation of those opportunities which the position of a practitioner offers for friendly and useful personal influence is a part of the obligation that rests on men so placed as to be the *only* friends the multitudes of the isolated cherish, or in whom they can confide.

THE AFGHAN WAR.

WE have received tidings from a correspondent with the Khyber force as late as the 1st of March. The visit of the Commander-in-chief, Sir Frederick Harries, and Surgeon-General Ker Innes, had been productive of some changes in the distribution of the troops for the hot months. Commencing at Jellalabad, the farthest point in Afghan territory held by us up to that date, it was arranged that the greater portion of that garrison were to be encamped on the Gundamak heights, overlooking the Khoord Cabul, twenty miles distant from the city, and possessing an elevation of over four thousand feet above sea-level. The Jellalabad plain is in the summer months excessively hot and unhealthy, so that it will be greatly to the advantage of the European soldiers to be cantoned at a distance from and above the malarial plain. The health of the troops of this part of Sir Samuel Browne's command was good. One regiment, the 4th Batt. Rifle Brigade, was suffering a good deal from fever; it was in contemplation to send them back to India, replacing them by a battalion from the reserve division. Heavy rain fell on the last day of February, which will keep the weather moderately cool for some weeks longer. When the move to Gundamak takes place, a small detachment, chiefly composed of native troops, will remain to guard the stores at Jellalabad.

At Dakka the garrison of the fort, which is low-lying, and very hot in the summer, will consist of a detachment of a native contingent, mostly Punjabees. Sundi Katal has been selected for another portion of the Khyber army; it is 3400 feet high, water is abundant and good, and there are ridges on the adjacent mountains at slightly higher elevation, suitable for sanitaria; here the 1st battalion 5th Fusiliers, two batteries of Royal Artillery, and two native regiments, will be stationed; huts will be erected, and till they are completed, the tents at present in use will be roofed over with thatch. When our correspondent wrote it was the prevailing opinion in camp that no advance on Cabul would be made; the negotiations with Yakoob Khan were considered as likely to end satisfactorily. Should this turn out not to be the case, and a general advance to the Afghan capital take place, the arrangements above described will naturally be much modified.

From Kandahar the accounts of the troops from a medical point of view are satisfactory; the men have undergone hard work and long marches, but, as a rule, supplies have been ample, and the weather, though excessively cold, being dry and bracing, they have endured the hardships of the campaign with little or no sickness. The British troops are described as looking hardy and in excellent condition after their long march from Mooltan and Quettah. The native troops and followers, unaccustomed to great cold, have suffered considerably from fever, diarrhœa, and pneumonia. The Kahars (dhoolie-bearers) engaged by the commissariat department were many of them old and quite unfit for the work of carrying a heavy dhoolie long distances; numbers of them broke down, were sent back to India, and the mortality amongst them has been great. To supplement the dhoolie carriage, kajawars of a light pattern for camel transport were ordered to be made in the Kandahar bazaar. The First Brigade, at Kelat, were expecting orders to return to Kandahar. Supplies were running short, fresh vegetables were not to be obtained, and a few men having shown symptoms of a scorbutic taint, lime-juice was issued as a daily ration. The mortality amongst the camels continued, due to the intense cold and insufficient food.

The base hospital at Kandahar, under Surgeon-Major Reade, was established in the Citadel, and contained ninety patients. For native troops and followers a base hospital was also completed and occupied by three hundred sick, a medical officer of the Indian service being in charge, assisted by medical officers of the native regiments in the garrison. At Quettah the base hospital was to be broken up, the sick returning to India with a convoy and escort, the officers and medical subordinates proceeding to Kandahar for duty.

THE MEDICAL SOCIETIES OF RUSSIA.

THE oldest Medical Society in Russia is that of Warsaw, of which the date of foundation is said to be unknown. Next in order of age is the Medical Society of Wilna, which was instituted the 26th of May, 1806. In 1856 the Society of Medical Practitioners of St. Petersburg was founded, and since that date numerous similar societies have been established in the empire. Of these two were founded in 1859, two in 1860, four in 1861, five in 1862, four in 1863, three in 1864, one in 1865, three in 1867, eight in 1868, four in 1872, three in 1873, four in 1874, five in 1875, three in 1876, and three in 1877. The total number of medical societies now existing in the empire is 70, of which 69 are devoted to the promotion of medical science, and one to certain benevolent purposes.

In addition to the Medical Societies there are eleven Pharmaceutical Societies, of which six are scientific and five benevolent. There is no mention of Veterinary Societies in the record before us.

The number of medical practitioners in the Russian Empire in 1877 is stated to have been 13,098, of whom 2027 were doctors in medicine. In the course of the same year 595 students completed their studies.

The number of pharmacies existing in 1877 was 1621, or one pharmacy for every 49,350 inhabitants. In these pharmacies were dispensed during the year 9,319,655 prescriptions, the gross cost amounting to 7,033,361 roubles, or at the rate of 34 copecks per prescription.

THE HEALTH OF PRESTON.

PRESTON is one of the whitewashed sepulchres of the north. Visitors who approach the town from the south, by the London and North-Western Railway, are usually much impressed with its beautiful public gardens, and if they do not chance to be too inquisitive in peering right and left into the courts and back streets overlooked from the railway, in its passage through the town, they are apt to carry away with them such impressions of the place as the local authorities would have. Again, visitors who happen to stop for a short time in the town, and content themselves with an examination of the Town Hall, and a ramble in the gardens referred to, are liable to get the notion that modern Preston does no discredit to the traditional "proud Preston" of northern story. But if it has been the visitor's ill-luck to become more familiar with the internal arrangements of the place he presently discovers that, even among northern manufacturing towns, Preston has a pre-eminence in the imperfection of its sanitary arrangements, and that its beautiful gardens form but a fringe, and its Town Hall a crown, to a vast, stinking middenstead. The Corporation of this town has recently been perturbed by the excessive mortality within it, but, as a rule, they appear to be satisfied that this has in no way arisen from any neglect of duty on their part. The season, the intemperature of weather, the prevalence of east winds, the

soil on which the town stands, furnish a sufficient number of reasons, in the opinion of some members, that Preston should have at certain times an unusual mortality. One worthy alderman protests against the Corporation or its Sanitary Committee recurring to this question of mortality, when it was obvious that the Corporation was impeccable; and another takes occasion to object to the tendency betrayed by Government to push sanitary legislation into the minutest details of sanitary work, subverting the principle of an Englishman's home being his castle. This sort of talk seems familiar to us in proceedings of the Preston Corporation in years gone by, and it is not long ago since this Corporation fought long against the appointment of a medical officer of health. Happily, however, there are injudicious members of the Corporation, and in a recent meeting one of them gives us to know that the privy nuisance is unabated in the town, and another that the Corporation is content with the middensteads being emptied every twelve months! Preston, in fact, lives habitually among a twelvemonth's accumulation of its most obnoxious filth, and its Corporation is resolved that the town shall not abate a jot its ancient pride in this arrangement.

THE VARIATIONS IN THE HÆMOGLOBIN OF THE BLOOD.

LEICHTENSTERN has investigated the amount of hæmoglobin contained in the blood in health and in various diseases by means of Vierordt's method of quantitative spectrum analysis. The blood was obtained from the finger, and mixed with a trace of caustic soda, without which the blood which contains many white corpuscles is too opaque. He has found that the blood of healthy new-born children contains the largest quantity of hæmoglobin. The quantity sinks pretty quickly, so that in ten or twelve weeks the average of adult life is reached. It then falls gradually, and reaches its lowest point at the age of six months to five years. From six to fifteen years it rises a little, and more considerably after the fifteenth year, so that between the twenty-first and forty-fifth year the second highest point is reached. It then again falls. Over sixty years of age the amount of hæmoglobin again rises. Sex makes a difference over ten years of age, the blood of females being a little poorer in hæmoglobin than that of males. Differences of constitution and of general nutrition appear to make no recognisable difference, only in four very obese persons the quantity was strikingly small. Hourly observation made on the experimenter himself during six days showed, with some probability, that four to six hours after food there is a striking fall in the hæmoglobin, probably due to a dilution of blood with chyle. Abundant ingestion of water caused in the healthy no alteration in the amount of hæmoglobin. On the other hand, it caused, in a woman suffering from nephritis, a slight diminution, together with an increase in the œdema. The withholding of liquids in a non-febrile case of pleurisy caused on two occasions an increase in the amount of hæmoglobin, although the exudation remained unaltered, and the urine became scanty. A course of sweating, by hot baths, in a patient suffering from lumbago, caused no distinct change. Febrile diseases, pneumonia, scarlet fever, acute articular rheumatism, epidemic cerebro-spinal meningitis, yielded no noteworthy result, and certainly no regular diminution in the amount of hæmoglobin. In typhoid there was no notable change in the first weeks of the disease. During the convalescence from febrile diseases, with protracted wasting, a diminution showed itself at last. In a case of fatal apyrexial ileus, a concentration of the blood caused an immense increase in the amount of hæmoglobin, amounting to more than 30 per cent. In phthisical patients the quantity of colouring matter was as a rule diminished, but in some cases it was normal. In cancer a diminution was always found, the only exception being a concentration of the blood through vomiting. A diminution was constantly present in gastric ulcer. Chronic heart disease showed almost constantly a diminution. In emphysema and diabetes mellitus the results varied. Chlorosis constantly showed a difference, and so also did leucocythæmia. Progressive pernicious anæmia always presented the greatest diminution met with in any disease. Energetic treatment of syphilitic patients with mercury, in which the weight of the body fell, caused a diminution in the amount of hæmoglobin, which again rose after the cure.

THE MONEY VALUE OF MEDICAL OFFICERS OF HEALTH.

THERE has been a warm debate over a proposition to raise the salary of the medical officer of health for Hackney. After the District Board of Works for Hackney had resolved to raise the salary from £525 to £575, there were plenty of plausible objections to the extra £50, and they were stated in terms at once forcible and moderate, such as the hardness of the times, and the fact that Dr. Tripe had already a larger salary as medical officer and analyst than any other medical officer in London, save that for Marylebone. The officer there received £652 as analyst and medical officer, out of which he paid £162 to two assistants. The medical officer for St. Pancras had £300; Lambeth £500; St. George's, West, £350; St. Mary, Islington, combined with analyst, £300; St. Leonard's, Shoreditch, £200; Paddington £300; Bethnal-green £200; Camberwell £300; St. James's, with analyst, £200; Kensington £500; Hampstead £125; Greenwich district £200; Hackney, with analyst, before the proposed advance, £525. There was no medical officer, considering the rateable value, who received so much as the Hackney officer. Islington had a rateable value of a million, and yet only paid £300. The supporters of the increase pointed out that Dr. Tripe took important duties which did not fall within the sphere of many other medical officers. The speakers on both sides admitted his merits and efficiency as an officer, and the increase was carried by 19 to 11. We congratulate Dr. Tripe on the result. The district has its reward in having all outbreaks of disease investigated early and intelligently, and a rate of mortality of 25·5, as compared with 29·4 for that of all London. A really earnest and efficient medical officer of health can scarcely be too well paid.

INFANT MORTALITY IN WORCESTER.

IT is very satisfactory to find that the excessive rate of infant mortality which has so long prevailed in Worcester appears to be now in a fair way to attract the attention it deserves. Nearly a year ago we had reason to notice that Dr. Strange, the medical officer of health, in his annual report for 1877, did not appear to give sufficient prominence to this feature of the mortality in Worcester. Together with his annual report for 1878, Dr. Strange has recently presented to his sanitary authority a special report upon the infantile mortality in Worcester, which, it may be hoped, will locally receive the most earnest consideration. Infant mortality in the city in 1878 was still more excessive than in 1877. With regard to the rate of infant mortality in Worcester in 1877, we pointed out that the rate was equal to 170 per 1000, while Dr. Strange now asserts that the rate did not exceed 161; but his figures appear to be at fault, for he gives the number of deaths under one year at 177, whereas, according to the Registrar-General's annual report, 183 deaths at this age were recorded in the union or district of Worcester, which does not include the whole city. We, therefore, rather under- than over-stated the rate of infant

mortality in 1877. Dr. Strange also appears to have understated the rate in 1878, for in his special report he states the deaths under one year to have been but 232, whereas in his annual report he (we believe, correctly) gives their number as 244. Calculated upon the latter number, the rate of infant mortality in 1878 was as high as 199 per 1000, instead of 189, as calculated by Dr. Strange. Full allowance must be made for the difficulties under which a medical officer of health, who is also a busy medical practitioner, labours in the preparation of statistical returns; and a knowledge of the true figures only gives additional force to Dr. Strange's valuable report. It may be hoped that the attention of the Town Council will, without loss of time, be directed to those streets and courts in which Dr. Strange describes the houses as "scarcely fit to remain as the abodes of human beings, and ought to be swept away." Dr. Strange, however, while freely admitting that the evil is in some parts of the city exaggerated by unwholesome dwellings, comes to the conclusion, that the excess of infant mortality in Worcester is mainly due to the ignorance, neglect, or poverty of the parents, and affords no evidence of what is called low sanitary condition. This naturally suggests the want of a definition of the term sanitary condition; we have always, however, objected to too narrow a definition of this term. In the meantime we agree with Dr. Strange, that in the matter of infant mortality educated women may and should render invaluable assistance to the medical officer of health. Dr. Strange proposes to test the willingness of the ladies of Worcester to help in the important work of reducing the excessive rate of infant mortality in the city, and it may be hoped that he will meet with a ready response.

THE SANITARY CONDITION OF MALTA.

THAT eminent philanthropist, Mr. Plimsoll, not content with humanitarian exertions afloat, has been recently excursionising in the Mediterranean, and, as one result of his journey, has recently published a pamphlet, headed "Condition of Malta." It consists of letters ostensibly addressed to the editor of *The Times*, but we do not remember to have seen them gracing the columns of our contemporary. Be this as it may, the facts detailed reveal a condition of things deplorable in any country, but simply disgraceful when we consider that this island is one of England's most valuable dependencies, and that it is pre-eminently the duty of the Government to look after the sanitary welfare of its inhabitants. It appears that the poor population of Valetta live chiefly in cellars, or, as Mr. Plimsoll calls them, pits, to which access is given by a common staircase, the cellars being usually three deep, hundreds of people living in them, at a monthly rent of from 1*s.* 6*d.* to 2*s.* 6*d.*

"They have no fireplace, and therefore no chimneys, and serve singly for a whole family—man, wife, and children. They have no windows, and some have no other aperture of any kind than the door; and when you have reached the bottom of the well you find the floor, the solid rock, wet with urine and foul with the ordure of the children. So little air reaches the bottom that the floor of the yard or well never dries, and so little light that when you are asked to enter and stand in the doorway it is dark as pitch, and you have to light a wax match to avoid falling down the two or three steps within the doorway. ..... The excrement in many of them is put into a box over the sewer, about twenty inches square and high. It goes right down into the untrapped sewer, and there accumulates in the dry season, unmixed with ashes or dry dust of any kind."

In one of these filthy dens, under a handsome house in the Strada Maza Muscetto, the writer found, in an area of 1692 feet, three storeys or tiers of six cellars in each, and in the lowest of all above thirty people were living, thirty-nine feet *below the level of the street*. The yard was only eleven feet wide, and the walls to the sky-line were ninety feet all round.

A committee of six medical men was appointed in 1874 to inquire into the death-rate and other particulars. The former was found to be 49·24 per 1000 of population, and the entire cellar system was, of course, condemned in the strongest possible terms. But up to the present time "nothing has been done." Much of the misery that exists appears to be caused by the continued imposition of a bread-tax, the direct effect of which is that the poorer classes are taxed 50 per cent. more than the so-called "noble," upper, and middle classes.

Mr. Plimsoll has directed attention to this disgraceful state of things at a convenient time, for as we are now, in the shape of Cyprus, saddled with another settlement in the Mediterranean, it is fit that some of the sanitary experiences gleaned at home should be exported for the benefit of those who are dependent for much of their comfort in life on the care and foresight of their rulers.

THE HOSPITAL SERVICE OF THE RUSSIAN ARMY.

A DETAILED official report has been published of the hospital service of the Russian army during the campaign of 1877, from which we take the following particulars:—The number of permanent hospitals was 76, having 42,091 beds, and receiving during the year 344,950 patients, of whom 3·46 per cent. died. The lazarets and ambulances numbered 457, with 35,558 beds, and giving treatment to 223,756 patients, of whom 1·66 per cent. died. The hospital provision for the Cossack troops is not included in the above, and consisted of 19 establishments, in which were received 6608 patients, of whom 3·26 per cent. died. In the Caucasus 50 temporary hospitals were established, with 10,500 beds, and which gave accommodation in the course of the year to 109,267 patients, of whom 5·27 per cent. died. The army of the Caucasus had moreover attached to it 19 movable lazarets, with 1493 beds, and which received 34,206 patients, of whom 3·69 per cent. died.

In addition to the foregoing provision in the field and in war of the several armies, 11 temporary hospitals were established in the interior of the empire, with 1493 beds, which gave accommodation to 34,206 patients, 2·0 per cent. of whom died.

The number of hospitals thus summarised would appear to have belonged to the military service of the army, exclusive of the aid furnished by the Red Cross Society and by civil hospitals. The hospitals established by the Red Cross Society numbered 230, with 14,510 beds, and they received 33,786 patients, of whom 1·93 per cent. died. Further, 91,587 sick and wounded soldiers were received and treated in 625 of the civil hospitals of the empire.

THE MEDICAL ASPECT OF FASTS AND FESTIVALS.

APART from the religious and disciplinary moral aspect of fasts and festivals, there is the physiological or moral. In days when the food of the people was, in its several classes, monotonous, and therefore wearying from the sense of sameness—among some orders and conditions of men being scanty and poor, among others redundant and too rich,—the strict observance of occasional fasts and feasts was decidedly advantageous. The use of fish in Lent at once encouraged the fishermen and ministered to the nutrition of the people. The season of abstinence, at that time rigidly enforced on the most licentious with dreaded pains and penalties, was not without its uses, while the merriment and high feeding of carnival time, though too often amounting to an orgie, were, on the whole, beneficial. The conditions of life are

now changed, and the physiological advantages of prescribed abstinence, and almost enjoined excesses, are not so apparent, nor, indeed, do the mandates of Mother Church generally command obedience. Nevertheless, we are not disposed to regard these systematic departures from the ordinary course of life as unworthy of adoption. In one form or another all except the most robust livers probably take measures to secure an occasional change of diet even in these days of composite dishes and ever diversified meals. To those who have not the opportunity of arranging their food-supplies in conformity with a preconcerted scheme of health, the fasts and festivals of the Church may prove convenient auxiliaries. This is probably, in part, the unconscious reason why these observances have not been suffered to die out under the blighting influence of that scepticism which grows with the national growth, and even seems to exceed it in rapidity and proportionate dimensions.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE medical officer of health of the East Dereham sanitary district in Norfolk, Mr. Henry Bird Vincent, sends us his first annual report. It gives promise of good local work, but in the absence of information as to the topographical and social peculiarities of the district, such as we should have expected in a first report at least, its interest is necessarily quite local.

Dr. Britton's fifth annual report on the sanitary condition of the combined rural sanitary authorities of the Halifax Union shows a continuance of the same careful detailed work which we have had to notice in his previous reports, but it withholds the comparative data which enable some estimate of progress to be made from year to year, and without which non-residents are completely at fault. The work of this combined sanitary district, from the number of small urban authorities included in it, is of peculiar interest.

The report of the medical officer of health for Kingston-on-Hull (Mr. Fearne Holden) shows a less favourable state of public health in the borough in 1878 than during the two previous years. The report, although sufficiently detailed as to the events of the year, does not furnish those comparative data which we presume must now exist in Hull, from which the true meaning of the fluctuation of mortality, seemingly in excess, in 1878, can be inferred.

The report of Mr. Lawton, the medical officer of health for the borough of Poole, for 1878, gives 21·89 per 1000 population as the rate of mortality for that district. But this rate is based upon a calculation of population which, we fear, would hardly be received by the Registrar-General. Mr. Lawton gives an instructive account of a town well, which was polluted from a drain which communicated with it near the bottom, and which appeared to be the overflow of a "sewage-well" in the neighbourhood.

A very brief report, for 1878, by Mr. J. B. Bromley, the medical officer of health for the second division of the Halsted Union rural sanitary district (Essex), gives an interesting illustration of the sanitary shortcomings of some of these rural districts. The district has no provision for isolating cases of infectious diseases, the house accommodation is evidently miserably deficient, and he records seven instances of proceedings before the magistrates for overcrowding; the water-supply depends upon "ponds and roadside ditches receiving surface-drainage." Although it is obvious that urban powers are needed to do many essential things, the Local Government Board does not feel at liberty to grant them. The burial-grounds are overcrowded, and so forth.

Dr. E. L. Jacob sends us an admirable tabular statement of the sickness and mortality of the Surrey United Sanitary District for 1878, with comments on the figures and a summary account of his proceedings during the year, which is a model of clearness. The tables include the comparative death-rate for five years, and thus enable the reader to form a tolerably clear notion of the health-condition of this district. We would commend this statement to medical officers of health, as an example to be followed. Without interfering with more detailed reports, this statement gives the chief data required in the clearest and most concise fashion. Tables thus prepared would render comparison between different sanitary districts possible.

THE CAMPAIGN IN AFGHANISTAN.

THE various columns now in the field in Afghanistan have at any rate one defect in their medical organisation. We allude to the want of a medical officer as secretary to each Principal Medical Officer of a Division. There is no provision made for such an officer, although the work falling on the P.M.O. of a Division is very heavy, and the assistance of a secretary is much needed. Unification, by centralising power in the P.M.O.s of Divisions, has greatly added to their work; and if the Officer Commanding the Artillery of a Division has an adjutant, the Commanding Royal Engineer a brigade-major, and the Chief Commissariat Officer a personal assistant, there is no reason why the Chief Medical Officer of the same body of troops should be left without such assistance. By the want of such a secretary, if the P.M.O. moves away from his office, or goes on any inspection of the line of hospitals, there is no one left in his office who is cognisant of the medical affairs of the Division, except some stupid native baboo, or perhaps some chance sergeant. We commend the lesson learned in this campaign to the attention of the authorities.

SANITATION AND MORTALITY IN LIVERPOOL.

UNDER the title of "Sanitary Nescience," a paper was recently read before the Liverpool Architectural Society, which should serve as a useful warning to those who may be inclined to attempt to draw deductions from statistics, the construction and true meaning of which they have not mastered. Mr. Boult, from the opening of his paper, appears to have designed an attack on the trustworthiness of the Registrar-General's system of vital statistics, because they represent the sanitary condition of Liverpool as very inferior to that of most other large English towns. In the course of the paper, however, this intention is quite thrown into the shade by the evolution of the astounding statement that the sanitary condition of the borough, after all the expenditure and improvements carried out, is no better than that of the parish in 1842, before the Local Health Act was obtained, or any of the improvements were effected. This assertion is based upon the supposition that the rate of mortality in the borough in the years 1837-41 averaged only 31·5 per 1000, whereas, in the present day, the death-rate for the borough "may be assumed as not less than 35 per 1000, so that the rate has actually increased 3·5 per 1000." Well might Mr. Boult parenthetically exclaim, "Such a condition of affairs is most deplorable, very startling, and very discouraging." As, however, a mere glance at official mortality statistics of Liverpool is sufficient to prove that this "deplorable and startling condition of affairs" has no existence, except in Mr. Boult's imagination, we can only sympathise with the sanitary authority, medical officer of health, and the residents of Liverpool, at the advocacy of their would-be friend. Mr. Boult's mortality statistics are so utterly fallacious, that had they not, in a measure, received the sanction of a scientific society, it would be a waste of time to insist upon their fallacy, which is the more inexcusable as correct figures might so

easily have been obtained either from the publications of the Registrar-General or of the Liverpool Town Council. During the last fourteen years (1865-78) the Registrar-General has regularly published vital statistics for the borough of Liverpool, from which it appears that the annual rate of mortality has averaged 31·2 per 1000 during that period. Whereas, however, the Liverpool death-rate averaged 34·3 during the seven years 1865-71, it decreased to 28·0 per 1000 during the more recent seven years 1872-78. As a warning to others it would be interesting to know the process by which Mr. Boult arrived at the conclusion (upon which the greater part of his paper is based) that the normal death-rate in the borough of Liverpool is about 35 per 1000; while, in fact, it has but slightly exceeded 31 per 1000 in the past fourteen years, and has declined from 34 to 28 in the last two periods of seven years. Although the death-rate in Liverpool still bears unfavourable comparison with that which prevails in London and in most large English towns, there is, perhaps, no other town the mortality statistics of which afford such convincing evidence of the beneficial results of sanitary "expenditure and improvement." Dr. Duncan, in his report upon the health of Liverpool in 1838-42, for the Health of Towns' Commission, calculates the rate of mortality in the parish of Liverpool at 35 per 1000; but the Liverpool of to-day, with all its sanitary shortcomings, is quite a different place from the Liverpool described by Dr. Duncan more than forty-five years ago. Hence the decline in the death-rate to 28 per 1000 during the past seven years. It may be hoped, and indeed expected, that Mr. Boult's assertion of the futility of sanitary efforts in Liverpool will not operate to check further sanitary progress in that borough, which is still so urgently needed.

NAVAL APPAREL.

WE see with much satisfaction that our military and naval contemporaries are again tilting hard at the injustice to naval officers involved in the practical absence of any standing rules about dress, which is now left entirely to the caprice of the senior at the station for the time being. There is no mess dress, properly so called, and no suitable dress for a tropical climate. Indeed, as we have remarked in effect many times before, it is astonishing that "my Lords" cannot find time or opportunity to consult the medical chief of the Department at Whitehall as to the best suit of clothing for certain climates—a matter that should rank in importance with ventilation, food and drink, and the many other things classed under the head "Prevention of Disease." The discussion of this and kindred subjects would occupy time far more profitably than planning and intriguing as to the post of Director-General, and who is to fill the post after the term of the present occupant has expired in December next.

FILTH REMOVAL.

WE have more than once had occasion to notice the different memoranda issued from time to time by the Local Government Board (Ireland) on the subject of filth-removal. This Board has the merit of having early and fully realised the extreme importance of this subject as affects Irish communities, and of recognising that amelioration from filth-nuisance among these communities must, in the main, depend upon the employment of some of the improved privy-systems which have of late years been adopted in numerous towns and villages of England. It has, therefore, spared no trouble in ascertaining from time to time what progress is making and what success has been achieved among English communities in carrying out improved privy-systems, and making the results known to sanitary authorities in Ireland. The reporter for the Board has been Mr. W. A. Power, formerly the private secretary of the President, now one of the general inspectors of the Board. Continuing the excellent practice which has been followed as to this subject, the Board has recently issued another memorandum on filth-removal, in which Mr. Power records the progress made in Birmingham, Manchester, and Rochdale since 1877. He tells, on the whole, an encouraging story of the extension of the pail-system of filth-removal in those towns, and of the prospect of substantial return towards the recoupment of expenses by the utilisation of the removed stuff. The publication of this further memorandum by the Irish Board should remind the English Board that it is high time to institute further inquiry as to the progress of local efforts to secure an improved filth-removal in England. It must be six or seven years ago since the last edition of the classical report of the Board on the subject was issued. Within that period immense strides have been made in the matter to which the report relates, and authorities and others who have to consult it are placed at a disadvantage in so doing, while the report itself fails to exercise that continuous influence which is to be desired from it.

CORONER FOR FLINTSHIRE.

THE freeholders of Flintshire are, we are informed, being actively canvassed for their suffrages by four aspirants to the office of county coroner. Three of these gentlemen are solicitors, and are not unknown as advocates. The fourth is a medical candidate, Mr. T. Ll. Browne, L.R.C.P., the deputy coroner for the county. The industries of this county are centred in coal, lead, and iron mines, and in chemical works of various descriptions. In fatalities attendant upon such processes of trade, especially is medical knowledge indispensable to a coroner to rightly weigh medical evidence, and to properly and intelligently instruct a jury. For generations this office has been held by medical men, the last ones being Mr. Peter Parry, who was in practice prior to 1815, and his son (who, though unqualified, received a medical education), who succeeded him some four years ago. Without repeating the views we have frequently advanced in favour of medical coroners, we trust that the freeholders of Flintshire will accord their support to the medical candidate, who has further advantage over his rivals in some years' experience in the office.

ARMY MEDICAL NOTES.

WE regret to notice the death of Surgeon Coppin, attached to the 80th Regiment, in the recent disaster on the Jutombe River, Zululand. Dr. Coppin was one of the civil surgeons sent out by the Army Medical Department to the Cape last year.

Surgeon-Major J. H. Porter has been appointed to the medical charge of the Field Hospital at Jellalabad, *vice* Surgeon-Major G. S. Davie, ordered to England on expiration of his term of service.

Surgeon-Major G. W. M'Nalty succeeds Surgeon-Major Gribbon in the medical charge of the 1st Battalion 25th King's Own Borderers at Jumrood.

THE CHAIR OF BOTANY IN GLASGOW UNIVERSITY.

THE removal of Professor Dickson to Edinburgh as the successor of Professor Balfour has rendered vacant the chair of Botany in the Glasgow University. The appointment is in the gift of the Crown. Two candidates are already in the field. Of Dr. I. B. Balfour, brought up as he has been at the feet of Gamaliel, we need say nothing. Dr. Stirton, of Glasgow, is less known than he ought to be. After a career in mathematics and medicine, he settled in Glasgow,

and in the intervals of practice studied botany. As an authority on the Cryptogamia, and especially on fungi, every botanist will admit his claim to recognition.

ACCORDING to the public assertions made by the Chairman of the Aylesbury Board of Guardians, the sewage from the Union workhouse has been emptied into a ditch for the last twenty years, and creates a great nuisance. Nobody, however, seems capable of deciding whether a proper sewer should be constructed by the guardians or by the Board of Health.

THE Dublin sanitary authorities are beginning to act energetically with regard to the contamination of milk. In the course of the last week in March forty-three dairies were inspected, and in many instances it was found that manure accumulations had been removed, pigstyes abolished, and the premises freshly whitewashed or painted.

THE Council of the Obstetrical Society have made arrangements for holding a discussion on "The Use of Forceps, and its Alternatives in Lingering Labour." The debate will be opened by Dr. Barnes at the next meeting of the Society, May 7th.

THE Prince and Princess of Wales will open the new buildings of the Hunstanton Convalescent Home on Easter Monday. An effort is being made to raise extra funds by giving two tickets of admission to this ceremony to all persons who subscribe one guinea.

THE ROYAL COLLEGE OF PHYSICIANS.

A MEETING of the College was held on Monday, the 7th inst., on which occasion the President, Dr. Risdon Bennett, was re-elected for another year, and a lively discussion took place respecting Note C to paragraph 12 in the report of the Committee of Reference on the Conjoint Scheme relative to vivisection.

The PRESIDENT, in laying down office, took occasion to remark upon the prosperous condition of the College, an increase of eighty-two names appearing on the roll, and the Treasurer's report, although burdened with some extraordinary expenses for the year, was also satisfactory. The history of the College during the year had been uneventful. The College had marked their sense of respect and affection for the memory of the illustrious Harvey by subscribing a hundred guineas to the Folkestone statue, and the tercentenary of his birth had also been celebrated by a banquet which was honoured by a numerous and distinguished company. Communications had been received from her Majesty's Government on the subject of the plague and hydrophobia. With regard to the former, the President reminded the fellows that Government had once before addressed a similar request to the College—viz., in 1631, when the plague was then at our own doors, and that the report then made contained recommendations that would be creditable to the sanitary science of the present day. The President thought it hazardous to conjecture what would be the ultimate fate of the efforts to establish a one-portal system of examination, but the College had done their best to place matters on a satisfactory footing. The President then paid a graceful and eloquent tribute to the memory of the fellows deceased during the year, to Dr. Eason Wilkinson, of Manchester, Dr. J. Birt Davies, of Birmingham, Dr. Vose, of Liverpool, and the Rev. Peyton Blakiston.

After the address the President vacated the chair, and proceedings for the election of President for the ensuing year commenced, the result being the re-election of Dr. Risdon Bennett.

Dr. BARNES, on being called on to introduce the motion he had given notice of—viz., "That the College, in accepting the first part of the scheme of the Committee of Reference, desire to draw the earnest attention of the committee to the strong opinion entertained by some of their fellows, and especially of those who have been engaged, or are still engaged, in teaching midwifery, that provision made for instruction in midwifery and the diseases of women is inadequate"—stated that in consequence of a letter addressed to the College on the subject by the Committee of Reference of the Conjoint Scheme, any action on his part was rendered unnecessary.

Dr. DUCKWORTH then rose to propose that Note C in Paragraph 12 be expunged, the note being to the effect that, in attending a course of practical physiology with necessary experiments and manipulations, "it is not hereby intended that he shall perform vivisections."—Dr. Pitman objected to the notice, as no papers relating to the Conjoint Scheme were before the College. This objection was overruled, the manifest desire of the fellows being that the question should be debated. Dr. West, Dr. Quain, and Dr. Acland vindicated the note. Dr. Quain's remark, that he was sorry to see that the meaning had been so generally misunderstood, drew from Dr. Barnes the smart rejoinder that for that very reason the clause ought to be expunged, as if the fellows were liable to misunderstand the note, the uninformed public would be still more likely to do so. Dr. Hare and Dr. Pye-Smith supported Dr. Duckworth's motion, which, on being put from the chair, was lost by 5 votes, the numbers being for it 24, against it 29.

THE INFLUENCE OF THE SOIL ON THE DECOMPOSITION OF ORGANIC SUBSTANCES.

IN an article on this subject by Dr. J. Soyka contained in a recent number of the *Zeitschrift für Biologie*, it is pointed out that the physical characters of the soil, the amount of moisture it contains (and especially the variations that occur from time to time in this amount), the temperature, and the quantity of organic and other materials that it contains, all powerfully influence the process of decomposition taking place in it. Yet this inquiry is full of interest, and has a direct and immediate bearing on the development and spread of various epidemic diseases. In Soyka's researches regard was particularly paid to the nitrogenous organic substances and to nitric acid, which may be looked upon as one of the terminal products, and the presence of which is an indication that the organic substances have passed through such metamorphoses as render them no longer injurious to health. The soil was placed in glass vessels, and, as a nitrifying substance, urine was employed evaporated to a definite degree of concentration. The observations of Boussingault, Millon, and Filtbogen have shown that the presence of alkalies, and especially of the alkaline and earthy carbonates, is of great importance in hastening the formation of the nitrates. Soyka's experiments in part fully bore out these results, for he found that urine of the same degree of concentration poured over fragments of glass and exposed to the air only showed signs of the presence of nitric acid after six weeks, whilst when the glass fragments were laid on a lime-bed nitric acid appeared in six days; but he further obtained the unexpected result that, if the lime were exposed to a red heat, six weeks were again required before the presence of nitric acid could be demonstrated. This, he says, is in accordance with experiments made in England, in which treatment of canal water with lime caused no conversion of ammonia into nitric acid.

The porosity of the soil is of great importance, as is shown by the fact that in porous soil in which the pores were partially filled with air, urine, diluted with ten times its weight of water, exhibited traces of nitric acid in seven, and when diluted with 500 times its volume of water in five, days; whereas, in a non-porous soil, the nitric acid only appeared after the twenty-third and the twenty-seventh days respectively. Further experiments, made to determine the

influence of the size of the pores, showed that with fragments of flint having an average size of 4 to 6 mm. diameter, the pores, or intermediate spaces, amounted to ·35 per cent. of the total volume, and the quantity of nitrogen appearing in the form of nitrites and nitrates was 190 mg. in eighteen days, 480 mg. in thirty-six days.

With fragments of flint having 2 to 4 mm. in diameter the pores amounted to 36·4 per cent., and the quantity of nitrogen was 480 mg. in eighteen days, and 66 mg. in thirty-six days. With fragments 0·6 to 1·2 mm. the pores amounted to 37·9 per cent., and the nitrogen was 860 mg. in eighteen days, and 1060 mg. in thirty-six days. The quantity of nitrogen in the form of nitrites and nitrates therefore steadily increased with the smallness of the fragments and the larger relative total volume of the pores.

It should be noticed that the water capacity, as he terms it, or quantity of water retained by capillary attraction, greatly augments with the smallness of the fragments and consequent smallness of the pores. Thus the fragments 4 to 6 mm. in diameter held 5·7 per cent. of their volume of water; those from 2 to 4 mm. in diameter 7·17, those of 1 to 2 mm. 13·6, and those 0·6 to 1·2 mm. in diameter 29·8 per cent. of their volume.

Other experiments showed that increased exposure to air, by aspiration of air through the soil considerably increased the amount of nitrites and nitrates.

The absence of light greatly favoured the production of the nitrites and nitrates. Thus, in one experiment, in eighteen days 19 mg. of the nitrites and nitrates were formed with, and 86 without, light, the conditions being otherwise similar. In thirty-six days 110 mg. of the nitrites and nitrates were formed with, and 330 without, light.

Dilution of the test fluid greatly favoured the appearance of the nitrites and nitrates, since when undiluted and in the absence of porosity—i. e., on a solid bed—no nitric acid appeared after four months, whilst when the mixture only contained 10 per cent. of urine, it was first detected on the thirty-sixth day, and when it only contained 1 per cent. on the twenty-second day, whereas, with the co-operation of porosity, the acid was not detectable in two months with the undiluted urine, but appeared after seven days with a 10 per cent., and after four days with a 1 per cent. solution.

These experiments are of considerable importance as bearing on the value of manures, since plants, in the absence of ammonia, can obtain all the nitrogen they require from the nitrates, whilst certain plants, such as the maize, buckwheat, and tobacco, derive all their nitrogen from this source. These and many other facts which have been of late years ascertained, demonstrate the great value of the nitrates as manures.

HEALTH OF LARGE ENGLISH TOWNS IN THE FOURTEENTH WEEK OF 1879.

DURING last week 5524 births and 3851 deaths were registered in twenty of the largest English towns. The births exceeded by 342, and the deaths by 481, the average weekly numbers during 1878. The deaths showed a further decline of 141 from the exceptionally high numbers returned in the four preceding weeks. The annual rate per 1000, which had slowly declined from 29·1 to 28·2 in the four previous weeks, further fell last week to 27·2. During the first thirteen weeks of this year the death-rate in these towns averaged 27·5 per 1000; in the corresponding period of the four years 1875-8 it was equal to 28·9, 26·2, 24·2, and 25·2 respectively. The lowest rates last week in the twenty towns were 13·5 in Norwich, 17·2 in Bradford, 18·8 in Oldham, and 19·8 in Portsmouth. The rates in the other towns ranged upwards to 31·0 in Birmingham, 32·3 in Nottingham and Sunderland, and 36·1 in Wolverhampton. The seven principal zymotic diseases caused 431 deaths in the twenty towns, an increase of 23 upon the number in the previous week; they included 153 from whooping-cough, 90 from scarlet fever, 62 from measles, and 37 from fever, principally enteric. The annual death-rate from these seven diseases averaged 3·0 per 1000 in the twenty towns; it ranged from 0·4 and 0·5 in Portsmouth and Bradford, to 5·0 and 6·9 in Sunderland and Wolverhampton. Whooping-cough, which was slightly more fatal than in the previous week, caused the largest proportional number of deaths in Manchester and Sheffield. Scarlet fever was most fatal in Sunderland, Newcastle-upon-Tyne, and Leeds; and measles in Wolverhampton, Leicester, and Newcastle-upon-Tyne. Enteric fever fatality showed the largest excess in Salford, Hull, and Leeds. Two deaths were referred to diphtheria in Plymouth, Birmingham, and Liverpool. Small-pox caused seventeen more deaths in London; but not one in any of the other towns. The number of small-pox patients in the Metropolitan Asylum Hospitals had declined on Saturday last to 257, a lower number than in any week since the beginning of January last; 35 new cases of small-pox were, however, admitted to these hospitals during the week.

THE PLAGUE.

ANOTHER case of plague occurred at Vetlianka on the 20th ult. The patient, a girl ten years old, was ill about a week, and then recovered. She was moved to a kibitka (Tartar tent) about a verst from the village, and there strictly isolated by a military cordon. The healthy inhabitants of the house from which she was removed were also placed in quarantine. No mention of this case has been made in any of the Russian reports which have as yet reached us. The occurrence of the case would appear to have modified the views of the Russian medical commissioners on the spot as to raising the quarantine of the infected area on the Volga. The latest news received states that at a meeting of five of the commissioners, with respect to this question, two (Drs. Eichwald and Sniguirew) advised the retention of the sanitary cordons until the hot weather set in; three (Drs. Munch, Jacoby, and Koitow) held that it would be sufficient to substitute for the inner cordons, posts of observation, and that the period of quarantine might be reduced from nine days to four days. They would continue, however, the general sanitary cordon round the whole infected area, and retain the special cordons at Vetlianka and Selitrenia, maintaining the former until the 22nd April; and they would have the posts of observation and a medical and sanitary supervision of the infected area maintained until next winter. These conclusions have been communicated to General Count Loris-Melikoff.

The work of burning the 67 houses condemned as infected in Vetlianka was completed on the 30th ult.

An Order in Council, dated the 22nd March, 1879, declares ships arriving in the ports of the United Kingdom from the ports of the Baltic, the Sea of Azov, the Sea of Marmora, the Black Sea, and the Mediterranean as liable to perform quarantine. No information has yet been vouchsafed by the Privy Council how quarantine is to be performed in this country, denuded as it is of provisions for its execution.

Correspondence.

"Audi alteram partem."

SANITARY NORMAS.

To the Editor of THE LANCET.

SIR,—A writer in THE LANCET lately questioned the statistics on which I set forth the district half-time schools as normas of sanitation in infantile life.

I stated that in these institutions there is an almost entire exemption from children's epidemics, and that their death-rates are not one-third of those prevalent amongst children of the same ages amongst the general population. The writer made out that the statistics which he took showed that the death-rates in those institutions were higher than those amongst the general population. But he did so by omitting to observe my statement, that those institutions were in fact almost children's hospitals, where large proportions came in diseased and many of them only to die, and that I had all those eliminated, and had only those taken where the children, though of an inferior type, came

in without any developed disease upon them. I did not, however, base my conclusions upon statistics, but upon the long concurrent observations of medical officers in charge of the institutions, whose constant expressions were of wonder at the absence of the "children's epidemics," and at the extraordinary comparative health obtained amongst the children under the conditions of sanitation there. I am enabled to adduce a valuable corroborative example of the efficiency of simple elements of sanitation, derived from a copy of a report I have received from Mr. Charles Brace, the secretary of the "Children's Aid Society" of New York.

This Society is one of the largest of the charitable institutions there, devoted to the rescue of orphan and destitute children, the street Arabs of that great city. The report for the last year states the sanitary results in these terms :—

"One very remarkable feature of our work during the twenty-five years has been the extraordinary health of our lodging-houses. Such results have probably never before been secured in any charitable or reformatory work. They have been obtained by the most scrupulous neatness, the free use of water, careful ventilation, and a wholesome supply of plain food. The Newsboys' lodging-house has sheltered 153,250 different boys in twenty-four years. There has never been in this period any case of measles, scarlet fever, small-pox, diphtheria, or any 'foul-air' disease among them, or epidemic or contagious malady; not even ophthalmia, to which asylums are so subject. But one death has occurred, from pneumonia, in 1858, and no physician has ever been called it. A few cases of accidents in the streets have happened among the lads, and the sufferers have been conveyed to the hospitals.

"The Eleventh Ward lodging-house, with 8989 boys, in thirteen years, has never had, so far as is known, any case of epidemic or contagious disease, nor found it necessary to call in a physician or recorded a death of a boy.

"The Eighteenth-street lodging-house, with 10,268, in fourteen years has never had any epidemic disease, but has sent sixteen cases to hospitals, of whom two died. These had only been in the lodging-house a few days.

"Of the Rivington-street lodging-house, with some 8000 lodgers in eight years, we could have said two years ago that there had never been a single case of sickness, but this year and last, owing to the building of one of those pests of the city, an old-style tenement house, near it, and the under-flow of tide-water mingled with sewage, malaria has broken out, and we have had twelve cases of it, although not severe. No official connected with any lodging-house has yet died in service."

Now, New York, be it noted, is a city where not above one-third of the children of the general population escape the children's epidemics and attain their fifth year of life. With the last monthly *Sanitarian* (by Dr. Bell, of that city) I receive also a normal instance of sanitation in the earliest stages of infant life. It appears that a small and peculiar community of not more than 300 persons have associated themselves together and obtained for their children special sanitary care. Since September, 1869, they have had fifty-five children born, of whom five, from the weakness of the mothers, were still-born; but of the fifty others who survived the perils of childbirth are all now living. There has been no death in the children's department for eight years. Compare this with maternities under sisters of charity in Paris, where not above a quarter of the whole number have survived, or with the results in any class of society. The following is the account of the course of sanitation given by the sanitary officer in charge :—

"Our system of nursing our young children, if it can be called a system, is nothing more than the ordinary one, with some perfection in detail which is made possible by our combined mode of life. An infant is cared for by the mother in her own room during the nursing period, and for some time longer. The nursing period varies from eight months to a year or fifteen months, according as the season permits. We do not think it advisable to nurse longer than a year. When the child begins to drink we sometimes begin giving it oatmeal, boiled two hours, and strained through a fine cloth, or pearl barley with cow's milk, which is generally from one selected cow. Whether it takes these preparations or not we get it as soon as we can on a diet containing more or less coarse unbolted wheat flour, and as soon as possible we come down to three meals a day, with nothing between meals. We give our children ripe fruit freely after they have learned to eat solid food, and avoid the habitual use of the bland, starchy foods, arrowroot, &c., as much as possible. They eat no meat until five or six years old. At about fifteen months old the mothers put their children into a nursery during the day, retaining them at nights for some time longer. In this nursery they are cared for by experienced nurses, and at about four years they enter the children's department. The rooms the children occupy have a south exposure, plenty of light, no trees within one hundred feet. Our house drainage is as good as we can devise, and the entry of sewer-gas in any form is vigilantly guarded against; slop closets are disinfected every morning after using, and locked the remainder of the day, being connected with a draft chimney. In a word, we aim to give them pure air, plenty of life in the open air, pure food of a plain quality, with very little fine flour, with little or no medicine."

It is to such examples that I would respectfully solicit the attention of all our sanitary associations, as of practical value for the advancement of sanitary science beyond any obtainable on speculative and untried conclusions. In my presidential address at Aberdeen I gave the Perth prison as a normal example of sanitation in the adult stages of life, it being, according to the testimony of the chief physician, Sir Robert Christison, exempt from epidemics, and the healthiest place in the world. But I have met with a subsequent normal example in the prison at Stafford, where of those who came in without developed disease upon them the death-rate during ten years did not exceed one per thousand; of these normal results, besides plain food, chiefly vegetable, of the cheap factors were pure water and absence from alcoholic drinks.

Where the purity of the water is accidentally affected the health is affected in these places. It may be observed, as illustrative of the state of speculative opinion and imperfect knowledge of sanitary science in municipalities, that whilst from examples of defective house and town drainage works no distinction is made between excretion which is putrid from stagnation and that which is undecomposed, it is held that the system of water carriage from houses is dangerous and inexpedient. In every separate cell of the prisons cited as normas of sanitation there is a watercloset.

I am, Sir, your obedient servant,

EDWIN CHADWICK.

East Sheen, Surrey, March 12th, 1879.

REMARKS ON "TREATMENT OF STUMPS AFTER AMPUTATION: A NEW METHOD."

To the Editor of THE LANCET.

SIR,—My attention was recently called to the communications on this subject by Dr. Ed. Gaurveau in your valuable journal. The treatment which he proposes, essentially occlusive in character, is offered to the profession as a substitute for Professor Lister's method. In Dr. G.'s method we have "moderate and uniform pressure" as a substitute for carbolised ligatures, and "a thick adhesive mass, which closes the lips of the wound, and excludes all contact of the air," instead of the carbolised spray, protection-gauze, and macintosh. Numerous scientific objections might be urged against this proposed method of wound treatment, as it certainly fails to conform to the requirements of the germ theory; but I prefer to bring forward some historical points bearing on the subject.

At the end of the seventeenth century Peter Verduin, a surgeon of Amsterdam, made known his method of amputation. He employed the single oblique flap (antero-posterior) which was used by many of the early surgeons. After the operation he washed the wound with warm water, placed the flap over the cut surface, covered the whole stump with styptic medicines, over these applied a bullock's bladder, and over the whole was bound a leather strap in the form of a cross. Verduin afterwards invented an instrument, which he called "Retenaculum," intended to hold the flap firmly in contact with the parts. This instrument was made either of iron or copper, concave on the surface designed to receive the flap, and convex on the outer surface; attached to it was a sort of handle, also concave on the inner surface, and intended to fit and to be bound firmly to the posterior surface of the limb. This instrument enabled him to maintain pressure sufficient to prevent hæmorrhage without the use of ligatures.

Let us now follow this treatment, that we may ascertain its final fate. I shall, for this purpose, report the opinions of a few surgeons who either employed it themselves or were familiar with its use.

Peter Massuet defended Verduin's method on account of the marvellous rapidity with which the stump healed and on account of the certainty with which the flow of blood was controlled by the pressure over the flap. Lorenz Heister, born at Frankfort-on-the-Main in 1682, died April 19th, 1758, and in 1719 was Professor of Surgery at Helmstadt, condemned this method, particularly on the ground that the flap was too much irritated by the projection of the bone, thereby giving rise to pain and inflammation. He strongly urged the use of ligatures.

Johann Ludwig Petit, born 1674, died 1750, professor and director of the Surgical Academy of Paris, endeavoured to produce compression of the vessels by a new instrument, which covered the stump in the same manner as Verduin's Retenaculum, but was worked by a screw. He remarked that the objection to Verduin's method was that it was occasionally followed by gangrene.

Thom. Ren. Gagnier attempted to show that Verduin's method was known to the ancients; he supposed that Celsus practised in accordance with it. He also recommended the ligature instead of Petit's compression for the arrest of hæmorrhage.

Hugo Ravatou and Vermule recommended as an improvement to Verduin's method two flaps instead of one. Garengeot improved Verduin's method by the use of the ligature instead of the retenaculum, applying to the stump compresses and bandages, and afterwards placing it on a pillow. The objections urged against Verduin's method, and which finally led to its being abandoned, were that the compression required to control the hæmorrhage gave rise in some instances to severe pain, in others to inflammation and gangrene.

I am, Sir, yours truly,

B. A. WATSON, M.D.,
Surgeon to Jersey City Charity, and
St. Francis Hospital.

Jersey City, N.Y., U.S.A.

"PLAGUE IN RUSSIA."

To the Editor of THE LANCET.

SIR,—I was much astonished when reading in your journal (THE LANCET of February 15th, 1879, p. 238) an article on "Plague in Russia: a Retractation." Your reporter has based his conclusions on a report of the medical department of the Russian Ministry of the Interior for the year 1877; but it is very unfortunate that his conclusions are based on the facts wrongly interpreted or misunderstood. He says that in 1877, 241 cases of Siberian plague (*peste de Sibérie*, as the Russians designate bubonic plague) were reported to the imperial medical authorities. But the Siberian plague (*pustula maligna*, or *carbunculus malignus*) is not the bubonic plague observed at Astrakhan. The Russians designate by the name Siberian plague, or Siberian ulcer (*Sibirskaja jaswa*) the disease that occurs not rarely among horses and cows, and is also infective for man; but among men this disease has not an epidemic character, but comes only by way of infection from diseased cattle, and is characterised by formation of carbuncules or pustules on various parts of the body, but especially on the face, hands, and feet, generally on the parts more exposed to infection from the exterior, or by inoculation of virus from diseased animals. Among men the malady is not very dangerous, as you can see from the percentage of mortality, that reaches the number of 21 per cent. The Siberian plague, or ulcer, comes not rarely, especially among horses, in many, but more commonly in eastern and northern provinces of the Russian empire, in marshy localities. By many authors the origin of the malady is ascribed to unhealthy evaporations from marshes during hot summer weather. The cases of Siberian ulcer among men occur also especially during the warmer months of summer, and they originate from infection from cattle. I have myself observed this disease in the province of Twer among horses; the disease was very fatal, and I have heard also of many cases of death among peasants. Among our rural population the opinion prevails that the ulcer or carbunculus is developed in man by means of a bite by an infected fly that had sucked the blood of a diseased animal; and perhaps this opinion is not wrong. All the cases occurring among men have not had an epidemic character, and occurred in villages far distant one from another; although it is obvious that the Siberian plague, or ulcer, is a disease quite distinct from bubonic plague, or *pestis indica*, as the last is described in the report of Dr. Döppner, translated in THE LANCET for Feb. 1st. If you accept that the Siberian plague is identical with common plague you must say that the plague is a malady very common in Russia, and that it exists there at all times; but it is not true. The last epidemic plague described in the province of Astrakhan is a true bubonic Asiatic plague, that extended from Persian limits by the way of the Caspian trade. I shall be very happy if you take my note as a correction of an involuntary mistake made by your honourable referent. The notions concerning the Russian Empire are so imperfect in your country that it is no wonder that such a mistake has been made. It would be more desirable that the Russian medical department should publish an official note, announcing that the Siberian plague observed in 1877 is not a malady lately prevalent in Astrakhan, and has no connexion with it.

I beg pardon, Sir, for my incorrect English, but my intention is only to correct the mistake, when the question of the plague has an importance for all Europe, and we are probably near to its complete disappearance from the limits of Russia.

Your obedient servant,

N. BARESKOFF.

Sterlitamak, Province of Ufa, Avsiano-Petrovsky Ironfoundry.
March 11 (23), 1879.

*** We have to thank our correspondent for his very interesting letter. Our information was derived from what we believed to be a trustworthy Russian source, in which the meaning we adopted was attached to the term "Siberian plague." It is a pity that a loose phrase of this sort should be made use of by professional writers when a correct technical term can be substituted for it.—ED. L.

DEAF-MUTISM.

To the Editor of THE LANCET.

SIR,—Not long ago I was consulted as to the mental condition of a child, and learnt the following family history, which is not without general interest, I think.

The father of the child was at the time I refer to aged forty-seven, and the mother forty-two. They were not related to one another, and they were both steady, sober, and healthy persons. They had had seven children. Nos. 1 and 2 were boys, and the third was a girl, all healthy. Nos. 4, 5, and 6 were girls, and were *all born deaf and dumb*. No. 7, a girl, was healthy, and was, when I was consulted, twenty-one months old.

I failed to discover any clue to the anomalous condition of the three deaf and dumb children. There certainly was no evidence of syphilis. The first-born of the deaf-mutes was intelligent and acquired knowledge, and got a prize at the village school for sewing and writing, showing some natural aptitude. The child brought to me was eight years old, and seemed intelligent, but was rather irritable, and had been teased by other children apparently. I did not consider her deficient in her mind, and advised her being educated and protected from annoyance.

I am, Sir, yours obediently,

G. MACKENZIE BACON, M.A., M.D.

Cambs. Asylum.

CASE OF BILIARY CALCULI.

To the Editor of THE LANCET.

SIR,—Some months ago I communicated to you a case of over two thousand biliary calculi, and which you inserted in your columns last July. Since then I have met with another case, which perhaps you may deem worthy of a very short notice. Like the former, it occurred in a female, S. B——, aged fifty-six years. The gall-bladder, which was of natural size, contained nearly an ounce and a half of very viscid, blackish-coloured bile, of a somewhat fetid

odour, and also calculi to the number of thirty-three. These calculi are peculiar and beautiful concretions. They are perfectly black in colour, and although they all sank to the bottom when placed in water they are of light weight—viz., six grains in all. They are all of about the same size, being nearly that of a peppercorn, but they have a very irregular and jagged exterior, and very closely resemble small pieces of charcoal. Several were firmly adherent to the mucous membrane of the gall-bladder, and four were firmly impacted in the cystic duct.

During life there were no signs or symptoms pointing to the presence of these stones; the liver was apparently normal, and the cause of death was long-standing mitral disease with pulmonary complication.

The whole of the calculi are undoubtedly composed of pure bile pigment. Such calculi are of rare occurrence.

I am, Sir, yours faithfully,

W. M. DUNLOP, M.B.,
Resident Medical Officer, St. Pancras Workhouse.

Obituary.

JAMES GERHARD REID, M.D.

THE last mail from the Cape of Good Hope brought news of the death of Dr. Reid, who had been established for fourteen years in practice at Riversdale. He succumbed after a short illness, under somewhat unusual circumstances. He had complained of neuralgia for some days, and with a view to secure relief determined to have three or four teeth removed. He appears to have been placed under chloroform for from three to four hours for this purpose. Subsequently severe hepatic disturbance occurred, and great gastric irritability. The sample of chloroform was found on examination to have been impure, though in what way is not reported. After nearly a week of severe suffering death ensued.

Dr. Reid belonged to a family which has been long settled at the Cape. He came to Edinburgh in 1858, and completed his medical curriculum there, taking his M.D. degree in 1862. While at the University he made many friends, and associated himself in all the best pursuits of his contemporaries. He next studied at St. Mary's Hospital in London, and, in particular, followed the clinical practice of the late Dr. Sibson. He became a member of the English College of Surgeons in 1863, and in the same year returned to the Cape. He was not long in securing a very good position for himself, and was made a Justice of the Peace for his district.

All who knew Gerhard Reid loved him. He was a man of the highest honour and integrity, and had the utmost contempt for all meanness. He was also eminently jealous of the dignity of the profession. In token of the regard in which he was held by his friends and patients, it has been arranged to place a slab of Aberdeen granite over his grave. Dr. Reid has left a widow and four sons to mourn his loss.

MR. JOHN F. T. MELVILL.

WE have to record the death of Mr. John Melvill, a very promising student of medicine from the Cape of Good Hope, who died of typhoid fever in the Royal Infirmary, Edinburgh, on the 18th ult. After spending one year at the hospital in Cape Town, he proceeded to the University of Aberdeen for three years, and took his fourth winter session at Edinburgh, intending to graduate this month. His course of study was very successful. He obtained class-honours in almost every class, won the affection of his fellow-students, and secured the respect and esteem of his professors by his steady conscientious devotion to work.

His funeral, on the 22nd March, was attended by the professors and teachers of the classes he had out, by all his fellow-students from the Cape, and by upwards of 100 of his class-mates.

It is very sad indeed to see a career of much promise thus blighted ere its opening by one of our preventable diseases.

DR. CHARLES O'REILLY (LATE OF DUBLIN).

THIS gentleman died in January, while on a visit to his daughter, Mrs. Henry Muirhead, of Glenelg, South Australia. He was a graduate in arts of the Dublin University, and in medicine of the University of Edinburgh. He practised in Dublin, and was much respected there, being at one time Vice-President of the Irish College of Physicians, and Lecturer on Forensic Medicine at the Carmichael School. He contributed various papers of interest to the *Dublin Quarterly Medical Journal*, among others, one on Arsenical Poisoning.

R. T. WOODHOUSE, M.D. EDIN.

THE medical profession in Reading have to lament the loss of Dr. R. T. Woodhouse (senior physician to the Royal Berkshire Hospital, and one of its founders), after a residence of upwards of forty years in the town. He was much beloved by all with whom he came in contact. He died on March 29th, aged eighty years, retaining his faculties almost to the last.

Medical News.

APOTHECARIES' HALL.—The following gentlemen passed their examination in the Science and Practice of Medicine, and received certificates to practise, on April 3rd:—

Bentham, Newton, Victoria-park-road, South Hackney.
Bunn, Charles Grinling, Finsbury-square.
Duncan, William Archdeckne, St. Thomas's Hospital.
Flanagan, Harold Edward Bickerson, Woolwich.
Laing, William Alexander Gordon, Brough, Penrith.

The following gentlemen on the same day passed the Primary Professional Examination:—

Robert Whitmore Pickering, Manchester Hospital; Francis Joseph Pound, London Hospital.

MR. N. E. DAVIES, of Sherborne, has been awarded a Government grant of £7 7*s.* for the efficiency of his vaccination.

MR. W. E. HACON, on leaving the Highgate Infirmary, has been presented with a handsome clock, with engraved plate, by the officers and nursing staff, as a mark of appreciation and regard.

THE death-rate of London declined last week to 28·2 per 1000, from 30·0 and 29·9 in the two preceding weeks. The number of deaths reported was 1958, and included 17 from small-pox, 43 from measles, 24 from scarlet fever, 10 from diphtheria, 78 from whooping-cough, 13 from different forms of fever, and 23 from diarrhœa. Diseases of the respiratory organs were rather less fatal, numbering 628 victims, against 687 in the week ending March 29th.

MR. E. J. O'MULLANE has been presented with an address from the members of the West Suffolk Social Lodge of Odd Fellows, Bury St. Edmunds, on the occasion of his election to the post of medical officer to the Nottingham Societies' Medical Institution. The address refers in warm terms to the "kindness, skilful treatment, and unwearied attention," displayed by Mr. O'Mullane towards the members of the Lodge.

VOLUNTEER AMBULANCE DEPARTMENT.—The Lord Mayor has consented to present the certificates of efficiency to the members of Surgeon R. A. Jackson's class, at the Guildhall, on Wednesday, April 16th, at 7.30 P.M., and there will be an official inspection of two other classes by Surgeon-General Munro, C.B., A.M.D., on the same occasion.

BEQUESTS TO MEDICAL CHARITIES.—The Halifax Infirmary has become entitled to £250 under the will of Mr. John Waterhouse, of Well Head. The late Mr. P. Whitly, of Dublin, has bequeathed £1000 to the Mater Misericordiæ Hospital, and £200 to the Hospital for Incurables. The Cork-street Fever Hospital, Dublin, has received £300 under the will of the late Mrs. Roe, of Nutley. A sum of £64 has been handed over to Barrington's Hospital, Limerick, being the proceeds of an amateur concert and dramatic performance recently given in aid of the hospital. The Greenock Infirmary has become entitled to £1000 under the will of Mr. Duncan Hoyle.

BOOKS ETC. RECEIVED.

Messrs. CASSELL & Co., London.
The Life of Christ. By Dr. Farrar.

Messrs. J. & A. CHURCHILL, London.
The National Dispensatory. By Dr. A. Stillé and J. M. Maisch.
The Diseases of Tropical Climates and their Treatment. By Dr. Horton.

Messrs. HACHETTE ET CIE., Paris.
Agenda du Chimiste. 1879.

Messrs. HARDWICKE & BOGUE, London.
Schools for Girls and Colleges for Women. By C. E. Pascoe.

Messrs. R. HILL, Madras.
Fourteenth Annual Report of the Sanitary Commissioner for Madras. 1877.

Messrs. LONGMAN, GREEN, & Co., London.
Transactions of the Obstetrical Society of London. Vol. XX., for the year 1878.

Messrs. MACMILLAN & Co., London.
The Pathology of Mind. By Dr. H. Maudsley.

OFFICE OF THE SUPERINTENDENT OF GOVERNMENT PRINTING, CALCUTTA.
On Certain Effects of Starvation on Vegetable and Animal Tissues. By D. D. Cunningham, M.B.
The Microscopic Organisms Found in the Blood of Man and Animals, and their Relation to Disease. By T. R. Lewis, M.B.

PALISSY WORKS, Sheffield.
A Message to the Churches, and for All Jews. By E. L. T.

Messrs. REMINGTON & Co., London.
The Elements of the Anatomy and Physiology of Man. By G. G. P. Bate.

Messrs. G. ROBERTSON, Melbourne.
Typhoid Fever, its Causes and Extent in Melbourne. By W. Thomson.

Messrs. SAMPSON LOW, MARSTON, & Co., London.
A Visit to the Court of Morocco. By Dr. A. Leared.

Messrs. SMITH, ELDER, & Co., London.
A Digest of the Principles and Practice of Medicine. By Dr. R. N. Khou.
An Atlas of Histology. By Dr. Klein and E. Noble Smith. Part II.

THE TORONTO NEWS COMPANY, Toronto.
Physiological Therapeutics. A New Theory. By Dr. T. W. Poole.

Messrs. WHEELER BROS., Nashville, Tennessee, U.S.A.
Yellow Fever. By Dr. T. O. Summers.

The Hunterian Oration. 1879. By Dr. G. M. Humphry. (Macmillan & Co., London.)—Proposed Legislation on the Adulteration of Food and Medicine. By E. R. Squibb. (G. P. Putnam, New York.)—Recherches sur la Mortalité des Femmes en Couches dans les Hôpitaux. By L. de Beurmann. (Messrs. Baillière et Fils, Paris.)—The Treatment of Dropsy of the Gall-Bladder by Operation. By G. Brown. (Messrs. Baillière, Tindall, & Cox, London.)—The Education of the Deaf on the "German" System. By A. A. Kinsey. (Messrs. W. H. Allen & Co., London.)—Stray Thoughts on Marriage, Music, and the Grievousness of War. By J. M. Macfarlan. (Messrs. Ritchie, Denny.)—Temperance, Abstinence, and Common Sense. By H. Lupton. (Messrs. A. Hall & Co., London.)—The Physician and Surgeon; February. (Messrs. Keating & Bryant, Michigan, U.S.A.)—Moral and Religious Estimate of Vivisection. By H. N. Oxenham. (John Hodges, London.)—A Case of Inflammatory Fungoid Neoplasm. By Dr. L. A. Duhring. (Messrs. J. B. Lippincott & Co., Philadelphia, U.S.A.)—The St. Louis Medical and Surgical Journal; February, 1879. (Messrs. G. O. Rumbold & Co., St. Louis, U.S.A.)—Archives of Medicine; February, 1879. (Messrs. G. P. Putnam & Sons, New York, U.S.A.)—Ueber das Verhalten der Samenfäden in den Geschlechtsorganen des Weibes. By Dr. D. Haussmann. (A. Hirschwald, Berlin.)—La Trépanation guidée par les Localisations Cérébrales. By Dr. J. Lucas-Championnière. (Messrs. V. A. Delahaye et Cie., Paris.)—Transactions of the American Dermatological Association; August 27th, 28th, and 29th, 1878. (Messrs. D. Appleton & Co., New York, U.S.A.)—Veröffentlichungen aus dem Königlich Sächsischen Militair-Sanitäts-Dienst. By Dr. W. Roth. (A. Hirschwald, Berlin.)—The Quarterly Journal of Inebriety; March. (Baillière, Tindall, & Cox, London.)—The Condition of Malta. By Samuel Plimsoll, M.P. (Messrs. Kelly & Co., London.)—Index Medicus. By Dr. J. S. Billing and Dr. R. Fletcher. Vol. I. No. II. (Messrs. F. Leypoldt, New York, U.S.A.)—Time; a Monthly Magazine. Edited by Edmund Yates. No. I.—Boy's Own Paper. Part II. Vol. I.—The Leisure Hour; April.—The Sunday at Home; April.—Good Words; April.—The Sunday Magazine; April.—The Magazine of Art; April. (Messrs. Cassell & Co., London.)—Social Notes; March. Part XIII.—The Nineteenth Century; April. (Messrs. Paul & Co., London.)—The Contemporary Review; April. (Messrs. Strahan & Co., London.)—Fraser's Magazine; April. (Messrs. Longman, Green, & Co., London.)—The Cornhill Magazine; April. (Messrs. Smith & Elder, London.)

Medical Appointments.

BARRS, A. G., M.B., has been appointed House-Physician to the Leeds General Infirmary, vice Jacob, resigned.

BOND, J. W., M.R.C.S.E., L.S.A.L., has been appointed Resident Medical Officer to the St. Pancras and Northern Dispensary, vice Taunton, resigned.

BOUGHTON, J. G., L.R.C.S.Ed., has been appointed House-Surgeon to the Branch Dispensary of the Cheltenham General Hospital and Dispensary, vice Ryley, appointed Medical Officer to the Cheriton-Fitzpaine District of the Crediton Union.

BOURNS, N. W., M.R.C.S.E., has been appointed Resident House-Surgeon and Registrar to the Cancer Hospital, vice Jeffries, resigned.

COATES, F. W., has been appointed a Physician to the Salisbury Infirmary, vice Blackmore, resigned.

CURETON, E., L.F.P.S.G. & L.M., L.S.A.L., has been appointed Medical Officer to the Shrewsbury Dispensary, vice Smith, resigned.

DAVIES, D., M.R.C.S.E., L.S.A.L., has been appointed Medical Officer of Health for the Stapleton Urban Sanitary District.

DAVISON, J. T. R., M.B., has been appointed House-Surgeon to the Wrexham Infirmary and Dispensary, vice Millard, resigned.

DICKSON, A., M.D., has been appointed Professor of Botany at the University of Edinburgh, vice Balfour, resigned.

EDWARDS, S., M.R.C.S.E. & L.M., L.S.A.L., has been appointed Medical Officer and Public Vaccinator for the Kingsclere District and the Workhouse of the Kingsclere Union, at £80 and £20 per annum and fees.

FORSBROOK, W. H. R., M.R.C.S.E., L.S.A.L., has been appointed Surgical Registrar to the Westminster Hospital, vice Neale, appointed Assistant House-Surgeon to the Northern Hospital, Liverpool.

HAGYARD, Mr. R., has been appointed an Assistant Resident Medical Officer to the Leeds General Infirmary, vice Storry, whose term of appointment has expired.

HARRISON, A., M.R.C.S.E., L.R.C.P.Ed., has been elected Assistant House-Surgeon to the Stockport Infirmary.

HEARN, R. T., M.D., has been appointed Medical Officer, Public Vaccinator, &c., for the Rathmines Dispensary District of the South Dublin Union.

HUNT, J., M.B., has been appointed Senior House-Surgeon to the Carlisle Dispensary, and Medical Officer to the Fever Hospital, vice Dunn, resigned.

HUNT, W. H., L.R.C.P.Ed., L.R.C.S.Ed., has been appointed Medical Officer and Public Vaccinator for the Glossop District and the Workhouse of the Glossop Union, vice Howard, resigned.

JEFFREY, Dr. J. D., has been appointed Medical Officer, Public Vaccinator, and Medical Officer of Health for the Parish of Ayton, Berwickshire, vice Dr. J. Jeffrey, deceased.

JOLLIFFE, W. J., M.R.C.S.E., has been appointed Ophthalmic House-Surgeon to St. Bartholomew's Hospital.

JONES, R. H., L.R.C.P.L., M.R.C.S.E., has been appointed Resident Medical Officer to the Royal Infirmary, Liverpool, vice Harrisson, resigned.

KELLY, D. J., L.R.C.P.Ed., L.R.C.S.I., has been appointed Medical Officer to the Workhouse and Fever Infirmary of the Mullingar Union, co. Westmeath.

LEE, C. G., L.R.C.P.L., M.R.C.S.E., has been appointed Medical Officer to the Liverpool Deaf and Dumb School, vice Bailey, resigned.

LEWIS, J. R., M.B., C.M., has been appointed Medical Officer for No. 3 District of the Barton-Regis Union, Gloucestershire, vice Colman, resigned.

MARTIN, Mr. F. W., has been appointed House-Surgeon to the Royal Westminster Ophthalmic Hospital, vice Weiss, resigned.

MESSITER, M. A., M.R.C.S.E., L.S.A.L., has been appointed a Medical Officer to the Guest Hospital, Dudley, vice Houghton, deceased.

PATERSON, A. G., L.R.C.S.Ed., L.R.C.P.Ed., has been appointed Junior House-Surgeon to the Carlisle Dispensary, vice Hunt, promoted.

PICKERSGILL, Mr. E. P., has been appointed an Assistant Resident Medical Officer to the Leeds General Infirmary, vice England, whose term of appointment has expired.

PIERSE, Dr. T., has been appointed Medical Officer, Public Vaccinator, &c., for the Wexford Dispensary District of the Wexford Union, at £120 per annum and fees, and £25 per annum as Medical Officer of Health, vice Sheridan, appointed to the Workhouse and Fever Infirmary.

RIORDAN, P. A., L.R.C.P.Ed., L.R.C.S.Ed., has been appointed Medical Officer, Public Vaccinator, &c., for the Killeagh Dispensary District of the Youghal Union, co. Cork, at £120 per annum and fees, and £24 per annum as Medical Officer of Health, vice Donovan, resigned.

ROGERS, R., L.D.S. R.C.S.I., has been appointed Dental Surgeon to the Cheltenham General Hospital and Dispensary.

SHEA, J., M.D., M.R.C.S.E., L.S.A.L., has been reappointed Medical Officer of Health for the Reading Urban Sanitary District, at £300 per annum for three years from the 8th inst.

THOMSON, G. L., M.D., L.R.C.S.Ed., & L.M., has been appointed Medical Officer of Health for the Kingclere Rural Sanitary District, at £60 per annum.

WATERWORTH, T. H., M.D., M.R.C.S.E., L.S.A.L., has been appointed Medical Officer of Health for the Parish of St. George-the-Martyr, Southwark, at £150 per annum, vice Bateson, deceased.

WELCHMAN, H. P., M.R.C.S.E., L.S.A.L., has been appointed Medical Officer for the St. Mary District, and Public Vaccinator for the Shenstone District, of the Lichfield Union, vice Morgan, resigned.

Births, Marriages, and Deaths.

BIRTHS.

DUNLOP.—On the 2nd inst., at Carlton-place, Glasgow, the wife of James Dunlop, M.D., of a daughter.

FLOWER.—On the 31st ult., at Warminster, the wife of Thomas Flower, M.R.C.S.E., of a son.

MILSON.—On the 1st inst., at Finchley-road, the wife of Richard Henry Milson, M.D., of a daughter.

MURDOCH.—On the 2nd inst., at Ayton, Berwickshire, the wife of James Murdoch, L.R.C.S.Ed., of a daughter.

RICHMOND.—On the 2nd inst., at Windsor-terrace, Glasgow, the wife of Thomas Richmond, L.R.C.P.Ed., of a son.

RORIE.—On the 2nd inst., at Dundee, the wife of James Rorie, M.D., of a son.

MARRIAGES.

BENTHALL—COOKE.—On the 5th inst., at the Parish Church, Kingston, Surrey, Albert Benthall, M.R.C.P.Ed., to Rosa, daughter of the late Edward Cooke, Esq.

WOODFORDE—TIDD.—On the 5th inst., at Marylebone Church, Alfred Woodforde, M.R.C.S.E., to Ada Sarah, daughter of the late John Tidd, Esq.

DEATHS.

BOLTON.—On the 24th ult., at Kustendjie, Roumania, Geraldine Frances Hungerford, the beloved wife of A. Irwin Bolton, A.B., M.B., F.R.C.S.I., Medical Officer to the Danube and Black Sea Railway Company, and daughter of the late Thomas Orpen, M.D., of Queenstown, co. Cork.

CASE.—On the 29th ult., at Fareham, William Case, L.R.C.P.Ed., aged 67.

COMYN.—On the 30th ult., at Roxborough, Limerick, Stephen Edward Comyn, aged 61.

HARRISON.—On the 25th ult., at Lancaster, James Stockdale Harrison, F.R.C.S.E., aged 82.

KIALLMARK.—On the 3rd inst., at 5, Holland-park-terrace, W., Mary, the beloved wife of Henry Walter Kiallmark, late of 66, Princes-square, aged 44.

PRESTWICH.—On the 4th inst., at Sandbach, Joseph Prestwich, L.R.C.P.Ed., of Oldham, aged 46.

ROBERTSON.—On the 28th ult., at Belmont, Bridge of Allen, William Robertson, M.D., Staff Surgeon R.N. (retired).

SELLS.—On the 31st ult., at Guildford, Thomas Jenner Sells, M.R.C.S.E., aged 68.

STEUART.—On the 6th inst., at Belmont House, Wadhurst, Sussex, Roger St. Clair Steuart, M.D., youngest son of the late R. Steuart, of Carfin and Westwood, aged 28.

WESLEY.—On the 5th inst., at Chichester, William Kerr Wesley, M.R.C.S., the youngest son of the late Samuel Sebastian Wesley.

N.B.—*A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

Notes, Short Comments, and Answers to Correspondents.

THE HEALTH OF MR. SPURGEON.

MR. SPURGEON belongs to the nation more than to his denomination, and we will venture on a little gratuitous advice to him and his friends, at the risk of having it disregarded, as gratuitous advice is apt to be. If all accounts be true, the worst symptoms in Mr. Spurgeon's case are those which imply overwork. It is vain to think that the balance of health in Mr. Spurgeon can be restored by three months' rest. Twelve months would be more like the time, though even that would be little enough.

"The sweet vicissitudes of rest and toil
Make labour easy, and renew the soil."

Few men have worked so hard as he. Let him rest hard, and we venture to hope that he may yet live long to speak in unsurpassed English his message to his countrymen.

Lichen.—The paper is marked for insertion, and will appear in an early number.

M.R.C.P.—We think such charges are a violation of the contract.

TINCTURE OF CHINCHONA AS A REMEDY FOR DRUNKENNESS.

To the Editor of THE LANCET.

SIR,—I see by the American papers (medical and lay) that a Dr. Robert D'Ungar, of Chicago, professes to have cured over 2000 cases of sottishness by means of frequent doses of a strong tincture of chinchona rubra (a pound to half a pint of rectified spirits of wine). He states that not only is the habit arrested, but that in all the cases the appetite for strong drink is completely extinguished. I am afraid that all this is too good to be true, but would be glad to learn if any of my professional brethren have tried the plan.

I remain, Sir, yours truly,

March, 1879. PAROCHIAL MEDICAL OFFICER.

THE NATIONAL COFFEE PUBLIC-HOUSE SOCIETY.

THE movement for establishing coffee-houses extensively has our warmest sympathy. It is vain to expect to get people out of public-houses. The want of a little society is most natural to men of all classes, and especially men of the working class after a hard and perhaps dull day's work. Society and comfort and pleasant light, with facilities for harmless games, *minus* the bad elements of the present public-house, are great desiderata, and seem to be supplied by the coffee-houses of the above Society, and in some instances by enterprising private individuals. It is still more satisfactory to know that such houses pay well as a commercial undertaking. Will the publicans not take a lesson, and supply the public with non-alcoholic as well as alcoholic beverages, which in the opinion of medical men are only to be taken safely in connexion with a meal?

Mr. Pickford.—Application should be made to the Director-General of the Medical Department of the Army.

INTERESTING OBSTETRIC CASE.

To the Editor of THE LANCET.

SIR,—The following is a brief account of an interesting midwifery case which recently occurred in my practice.

On February 10th, at 10.30 A.M., I was called to Mrs. L——, said to be in labour with her first child. Slight pains were occurring every twenty minutes, and the tip of the finger could only just enter the os. The child was carried very high, and the presentation was uncertain. The patient remained in this condition until 4.30 the next morning, when I was called again. The pains were much more frequent, although very slight, and the os was dilated to about the size of half-a-crown. It was still impossible to make out the presentation, as the amnion seemed from some reason peculiarly thickened and rough, feeling like a piece of thin sodden cloth, but quite as flexible as usual. After remaining with the patient some hour and a half, during which time the pains became much less frequent, and I was still unable to make out the presentation, I determined to give a dose of ergot and rupture the membranes. I did so, the membranes breaking quite as easily as in the ordinary condition of things; but my surprise was great when no rush of water occurred, and my finger entered a cavity, the sides of which still remained uncollapsed. All that I could feel was apparently a mass of clots. On removing the hand, however, a very considerable gush of water took place. I then reinserted my hand, cleared away many clots, and tried once more to make out the presentation, but with as little success as before. The pains were now coming on very rapidly, and, although all that presented was a mass of undistinguishable matter, a child was suddenly expelled. The explanation was to me very interesting and strange. The child, I should imagine, was about a seven months' one; head excessively enlarged from hydrocephalus; the thickened and rough amnion was really no amnion at all, but the child's sagittal sutnre very much softened by decomposition; the water was hydrocephalic, and the clots brain-matter. I had been trying to find out the presentation with my fingers inside the child's skull. It may appear strange to many that during the time previous to rupturing the supposed membranes I was unable to diagnose the case; but this strangeness disappears on taking into consideration the tremendous bulging produced by labour-pains on the hydrocephalic head, the softness of the bones, and the extent to which they were separated.

Yours truly,

March, 1879. C. J. S.

Lex Talionis.—We are much disposed to agree with our correspondent in thinking that his "brain must be strangely warped." He seems to have joined the department with an expectation of an amount of home service which a very moderate degree of inquiry would have shown him to be impossible, and we fail to see how his new grievance can in any way affect him. Our views on the policy and effect of employing non-military surgeons on army service at home were explained in a leading article on March 29th, p. 457.

C. E. D.—No appointment can now be obtained by an unqualified man, as the army is pretty well supplied with medical officers.

Mr. Richard Welling is thanked.

CAUSE AND EFFECT.

To the Editor of THE LANCET.

SIR,—I have had in the course of my service as an officer in the navy to sit upon some scores of courts-martial, and preside at many hundreds of "quarter-deck petty sessions," at both of which tribunals a large number of men were charged with breaches of discipline. I found that in the serious cases it was the almost invariable rule for them to have been committed after 1 P.M., the offenders usually being "ordinary seamen"—i. e., lads of about nineteen or twenty. These lads are allowed their grog and to use tobacco. Grog in the navy is issued at half-past noon, and must be drunk almost directly. Smoking is allowed at the same time, and "ships' tobacco" is strong enough to have nearly passed into a proverb. The middle of the day on some stations is fearfully hot. Is not a predisposition to ill-temper and consequent insubordination to be traced to drinking spirits and smoking strong pipes under a burning sun? and would it not be better to keep the issue of the grog till, say, after 4 P.M.? Will the medical officers give us an opinion on this matter?

Your obedient servant,

London, March 25th, 1879. POST-CAPTAIN.

DISINFECTING CHAMBER FOR LIMERICK.

AT a recent meeting of the Limerick Corporation it was resolved to defer erecting a disinfecting chamber for that place for another six months. Dr. O'Sullivan said he would appeal to the Local Government Board to get funds for the Board of Works to erect a disinfecting chamber, as it was much required. They were now at the commencement of the fever season, and the cost of providing a chamber was opposed on the score of expense; but he thought the cheaper economy would be to erect the chamber at a cost of £350 than pay people for their clothing, which otherwise it would be found necessary to burn.

Mr. Barwell's clinical remarks shall appear next week.

WOUND OF THE FOREARM; ANTISEPTIC TREATMENT.

To the Editor of THE LANCET.

SIR,—J. B——, aged fifty years, was admitted on March 25th, 1878, having received a wound in front of the forearm, caused by the fall of a stone of much weight, a sharp corner of which had severed the tendons and soft parts in front of the wrist-joint as completely as if it had been inflicted by a knife; the articular extremity of the radius was fractured, as well as some of the carpal bones. As none of the fragments could be removed without inflicting further mischief, I decided to leave them alone, and to bring the parts together, having previously washed the wound thoroughly with a solution of carbolic acid. The forearm was placed on a poroplastic splint, extending from the back of the hand to the elbow-joint, to which it was firmly but not tightly fixed, leaving a space to dress the wound, which was treated according to Mr. Lister's antiseptic method, the spray being used during each dressing. A splint was also applied over the antiseptic dressing in front of the forearm, with a pad in the palm of the hand and on the arm above the wound, so arranged as to fix the joint without exerting undue pressure on the wound, the fingers being kept in a semi-flexed position. Within forty-eight hours violent traumatic fever set in, temperature ranging from 102° to 104°, with profuse perspiration, vomiting, and diarrhœa. All these symptoms persisted with more or less severity for four or five days; the wound and the surrounding parts also presented an angry appearance for some days. To give a detailed account of this case would occupy too much space; but I may observe that the constitutional symptoms gave way, and the local symptoms improved. The dressings were changed every three or four days under the spray. No suppuration took place in the joint or the wound; but a small abscess formed in the forearm in the course of one of the tendons, which, being discharged, gave no further trouble. The wound gradually healed, the joint became firm, and the man left the hospital in two months from the time he was admitted, with a very small opening in front of the joint, from which a small dead piece of bone came away, when it healed completely with this result: The joint is quite immovable; the fingers are semi-flexed, with some degree of motion, particularly the index-finger, indicating that the deep flexors were not severed; the thumb moves freely, can be brought in contact with the fingers, and can take a firm hold. The man resumed his work within six months after the accident.

Remarks.—In this case the patient was a bad subject; he was somewhat advanced in years, he was a hard worker and a low liver. The wound was inflicted by a large stone, so there was much contusion. I believe the favourable termination of this case is due to the method of treatment adopted—viz., antiseptic treatment with infrequent dressing. The dry method with infrequent dressing may answer well in simple wounds in healthy subjects; but in such a case as I have related, and in the treatment of most wounds, Mr. Lister's method gives a security to a patient which no other known method possesses.

Yours &c.,
THOS. HUGHES, M.D.

Dinorwic Quarries Hospital, Llanberis, March 18th, 1879.

THE EVANS FUND.

THE following sums have been received at THE LANCET Office on behalf of the above:—

Mr. Alderson, Hammersmith	£1	1	0
Mr. W. M. Baker, London	2	2	0

Ignotus, (Birmingham.)—The statue of Dr. William Babington stands, we believe, in St. Paul's Cathedral (not Westminster Abbey), and was executed by Behnes. Dr. Babington died in 1833.

"SANITATION AT REIGATE."

To the Editor of THE LANCET.

SIR,—Permit me to correct an error in your issue of April 5th, and I will ask you to allow this correction as prominent a place in your journal as the mistake itself.

The town of Reigate and the immediate surroundings are supplied by the Reigate Waterworks Company, and within this district there have not been any cases of typhoid. Redhill, Nutfield, and Caterham are supplied by the Caterham Water Company, and to this area the epidemic of typhoid has been entirely confined. The contamination of the water took place in the third week of January. The cause was absolutely determined, and proved to be of an accidental and temporary character. The course pursued by the epidemic has confirmed this opinion. Apart from this unfortunate accident, the health of the parish of Reigate has fully maintained its well-earned reputation.

I am, Sir, your faithful servant,
C. HOLMAN, M.D.

Reigate, April 7th, 1879.

POOR-LAW RELIEF IN IRELAND.

AT a meeting of the Belfast Board of Guardians held last week, a resolution was adopted that a petition from the Board should be presented to Parliament, praying for an inquiry by Commission into the working and the effect of the Poor-law system in Ireland. Among other matters, it was suggested that where the number of inmates in a poor-house does not exceed 200, such poorhouse should be amalgamated with its neighbour, and the vacated building converted into a hospital for the lunatics and epileptics in other poorhouses.

HERNIA TRUSS.

To the Editor of THE LANCET.

SIR,—Permit me to direct the attention of the profession to a modification, recently introduced by myself, of the old spring hernia truss. It is made in the manner now to be described.

Take a double truss of the requisite measurement, but containing only a very feeble spring. From the back of the spring remove a portion eight inches in length. This being accomplished, apply the truss to the body of the patient, and keep it in position by means of a strap extending from brass pin to brass pin, and holding the two pads in the spots required. The advantages of this form of truss are as follows:—(1) Inasmuch as it fits closely round the pelvis, it cannot get out of place, and consequently (2) requires no accessory perineal straps. (3) Its employment does not impart a bunchiness to the figure. (4) It does not destroy the underclothing. N.B. The brass pins are made sufficiently prominent to carry one thickness of strap only. (5) It is durable. (6) It is comparatively inexpensive. (7) It offers the least possible mechanical impediment to the introduction of the hand into the trousers pocket.

As several of my patients have now worn appliances of this kind for a considerable length of time, I feel I may with safety guarantee their efficiency.

This truss will certainly meet the requirements of all small herniæ. I doubt its sufficiency in cases of old herniæ protruding through much-dilated abdominal rings. The threnodies of an old and valued patient—dyspeptic, and consequently thin-skinned,—who had for years suffered grievously from abrasions of cuticle, induced by the wearing of an instrument the fad of a London specialist, and which had cost my client the sum of three guineas, first directed my attention to this matter.

Maw and Son make for my afflicted ones, and are consequently well posted in the precautions necessary to be taken during the process of manufacture of these instruments.

On a future occasion I trust, Sir, to receive your permission to insert in the columns of THE LANCET a further communication relating to hernia and the alleviation thereof.

I remain, Sir, yours &c.,
JOHN BEADNELL GILL, M.D.,
Physician to the Folkestone Dispensary and Infirmary.

Folkestone, March, 1879.

BRADFORD INFIRMARY.

WITH respect to the statement which appeared in a late number of THE LANCET, that there existed an unwillingness on the part of the staff of the Bradford Infirmary to admit the profession of the town to the hospital practice and operations, Dr. Goyder writes: "I can unhesitatingly say that since my appointment to the staff, now four years ago, I have never seen anything but welcome and courtesy shown to the medical gentlemen who have presented themselves; and from personal knowledge I am sure that the staff is desirous of offering to all practitioners, 'L.S.A.' amongst the number, every facility for observation which the operations and hospital practice can afford."

SANITARY STATE OF PENZANCE.

To the Editor of THE LANCET.

SIR,—In default of any action being taken by the proper authorities, I cannot forbear any longer calling your attention to the insanitary condition of the town of Penzance. I am not a resident in the town; but I learn from undoubted authority that enteric fever has been rife for some months past, and that at the present time there are nearly fifty cases under treatment. The same authority also informs me that during this outbreak nine deaths have occurred in one family circle! I am not in a position to offer any opinion as to the immediate cause of this extensive outbreak; but I know that in the house of a friend, where three cases have occurred, neither the water nor the milk has been at fault.

The apathy of the authorities, and the pressing necessity for an immediate investigation into the cause of this lamentable state of affairs, must be my excuse, if any be needed, for thus intruding upon your valuable space.

I enclose my card, and remain, Yours &c.,
April, 1879. G. R.

DIGITAL DILATATION OF OS UTERI.

To the Editor of THE LANCET.

SIR,—Like "Surgeon" in your impression of March 8th, I, too, should like to know in what special cases one might avail himself of the utility of the operation as advocated by Dr. Edis at the Obstetrical Society, and whether any advantage is claimed for the procedure over Barnes's dilating bags or the usual remedial measures.

I am, Sir, yours truly,
HENRY J. FORSTER, Surgeon.

Deeping St. James, Lincolnshire, March, 1879.